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ORIGINAL ARTICLES.

NOTES ON MANAGEMENT OF THE INSANE.*

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EVERY mind was made for growth, for knowledge; and its nature is sinned against when it is doomed to ignorance. Let the individual feel that through his immortality he may concentrate in his own being a greater good than that of nations. The progress of society consists in nothing more than in bringing out the individual, in giving him a consciousness of his own being, and in quickening him to strengthen and elevate his own mind."—(Channing).

Common law holds that the insane and the imbecile shall not be held accountable for their acts; that they shall be restrained and segregated, and receive the commiseration of their fellows, being treated as unfortunates, not as criminals, there are no reliable data by which it is possible to form an accurate conclusion as to the total number of insane persons in the United States, as all statistics of this character appear to be based upon report of the census enumerator, the correctness of which can hardly be substantiated. Statistics of this character belong to the so-called "elastic" variety, and at best can only be regarded as approximate estimates.

Unquestionably human life is oftentimes imperiled by the custom which has hitherto prevailed of permitting friends and relatives to care for those, even in the incipient stages of insanity, as it is unknown when such individuals may suddenly become violent and unmanageable. Removal from home and family surroundings, in the vast majority of instances, is an indispensable prerequisite to improvement or recovery, and persons suffering from any form or degree of insanity should be placed in a suitable institution under the most enlightened medical supervision.

The helplessness resulting from mental deterioration frequently necessitates extraordinary methods of management, such as are not expected or required in institutions intended for reception and treatment of the ordinary sick and injured.

While mental diseases are not believed to be appreciably increasing among the affluent or even the well-to-do classes, the converse appears to be true in the wage-earning class. In the constant struggle for sustenance of their families the latter class have no cessation from toil and when overtaken by the results of disregarded hygienic and sanitary laws, being unable at the critical period to obtain rest or recreation, mental disease and insanitay not infrequently supervene; and as their limited means do not permit of their entering private sanitaria for prolonged treatment, they perforce have to avail themselves of State institutions for care of the insane. As a natural sequence, such institutions, with few exceptions, are filled with that worthy class who are unable to pay the whole or even a portion of the expense necessary for their proper maintenance, and thus they become a burden on the State.

In considering hospital or asylum management and treatment of the insane, the requisite number of attendants for efficient service becomes a matter of paramount importance. Investigation shows that the ratio of attendants of patients in the Eastern States is about 1 to 9.5; in the Middle and Western States about 1 to 12.6; in the Southern States about 1 to 15.2; in the Pacific States about 1 to 18.8; average of sixty-nine hospitals 1 to 12.5. In all the foregoing the number of attendants is insufficient, and it may be interesting in this connection to mention a few of the institutions having nearer the proper ratio: Columbus, O., about 1 to 7; Michigan about 1 to 8; Mendota, Wis., about 1 to 8; Nebraska about 1 to 8; St. Joseph, Mo., about 1 to 8; Massachusetts about 1 to 3; Hartford, Conn., about 1 to 3; Utica, N. Y., about 1 to 7.

"All honor to those who made the first bold advance in striking the shackels from off the madman; their efforts were in the line of effective reform which has blest the world with its humanizing influence."

The superintendent of a State or other institution for care of the insane labors under an avalanche of difficulty and embarrassment, if allowed an insufficient number of attendants to keep patients under proper control and restraint; therefore, the larger the percentage of attendants the more care and oversight may be bestowed upon inmates and the fewer number will require immoderate restraint.

It is important to carefully consider the character and qualifications of prospective attendants in an insane hospital, and only those who are honest, conscientious and trustworthy should be employed. Once engaged, however under such circumstances, it must be remembered that they are but human beings, that their work is oftentimes arduous and exacting, that some patients in institutions of this kind are trying to an extreme degree, taking malicious delight in annoying attendants and advantage of the implied knowledge that they are likely to be dismissed from service if undue restraint be resorted to.

Which would seem more humane in the management of a violent patient, a sufficient number of attendants to guard and pacify him, or that he be placed in a small poorly lighted and badly ventilated room, having the appearance of a dungeon, left to divest himself of his clothing and tear it into shreds, to annoint himself and the walls of the room with filth, exposed to his own rash acts of violence, and oftentimes vicissitudes of weather? There are many well-authenticated cases on record where patients have mutilated themselves during temporary frenzy while in close confinement, and have mourned over their misfortune after reason was restored, which timely aid of an attendant might have prevented.

In attempting to ameliorate and better the condition of these poor unfortunates in a State institution, it is within the province of the State authorities to

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185080

say, what amount of care and skill shall be bestowed upon them, i. e., whether the institution shall be a curative one, or simply an abiding place where influence of the irritated and diseased mind shall be permitted to gradually overcome and hasten the body to its final rest!

In ministering to a mind diseased much good can be accomplished and distress alleviated by diversion. The means which scientific investigation and experience indicate to be requisite to secure this "consummation devoutly to be wished" are: (1) employment, (2) recreation, (3) amusement, all of which conduce to lessen irritation and promote mental restoration. Experience also suggests proper classification of patients; but because of lack of space and adequate facilities these desiderata are often wanting in State and other institutions.

It is desired that especial attention be directed to the advisability of industrial employment for the insane, the establishing of a library and reception room, a hall for religious services, various kinds of amusements, etc.; all these are of paramount importance in diverting the patient's thoughts from himself, and which it is believed cannot be otherwise successfully accomplished.

It is recognized the establishment of a system of industrial employment among the insane is an enterprise fraught with difficulties. The benefit to patients which might thereby accrue is unquestioned, but it is not easy to arrange ordinary kinds of employment for individuals with disordered minds; safety and economy must be considered, and the employment must not be injurious, but if possible beneficial, to the patient. The risk attending the placing of implements of any kind in the hands of the insane, unless it be done with the utmost circumspection, must also be borne in mind. Moreover, there may be difficulty in furnishing sufficiently alluring inducements to patients to secure their acquiescence in employment. In addition to the laziness common to the genus homo, the insane are further inclined to inactivity by disease; and oftentimes those possessing the greatest degree of intelligence and skill and who in consequence would be the most useful, could they be employed, are disinclined to exert themselves, as they feel under no obligation to an institution which exacts confinement and restraint without reason which they can appreciate.

Notwithstanding the difficulties and embarrassing circumstances which may arise, duty to humanity in general and these unfortunates in particular, demands that institutions, whether under State or other control, adopt methods and systems of management and treatment which science and the experience of other similar institutions have demonstrated as most advantageous and prerequisite to insure success. It will doubtless be conceded that every inmate physically capable and who is not violently insane at all times, can do something, but none should be allowed to do too much. This motto is applicable to all the wards in a general way, although there are exceptions, and a few insane patients will be found who for obvious reasons cannot be employed in any capacity. An intelligent and painstaking superintendent by careful study and consideration can determine where the line should be drawn, and this can only be done by thorough study of individual cases and the exercise of mature judgment.

The relation of the physical to the mental condition of the insane is exceedingly important and should be constantly kept in view, as physical ills are not infrequently prolific sources of mental derangement. It may be found some patients require absolute rest and liberal dietary to restore the exhausted mind and body, while the converse is true in others. The enervating, immoral tendency of idleness of body and mind in everyday life calls for judicious employment, recreation and amusement to improve nutrition and mental and physical strength. And if this be true of persons enjoying a fair degree of health, it is doubly so in those suffering from mental diseases, and institutions which provide these requisites are able to refer to a long list of patients (many of whom were regarded as chronic and incurable), who have recovered, or sufficiently improved, to return to the outside world and properly maintain and conduct themselves. These suggestions have been brought to public attention by those who have friends or relatives in insane asylums, and it is hoped the agitation will continue until the best interests of the insane are conserved by more modern and enlightened management.

To secure the best results it is necessary that the mind of an insane individual be maintained at a high degree of activity, which can only be accomplished by providing means to engage and divert his attention from himself, thus obviating delusions, hallucinations, etc., from which he would otherwise suffer. Who has not thought, after visiting the wards of an insane ayslum, what miserable creatures these poor unfortunates are, "arranged around the walls, the silent spectacle of the curious!" If one clothed in his right mind were forced to adopt this routine method of existence, would he not be bereft of intelligence and reason? If these things be true, can it be expected that by confinement alone there will result restoration of a mind diseased? And more especially does this apply to those patients who suffer from periodic attacks of frenzy and who are oftentimes restrained by confinement in poorly lighted and badly ventilated rooms, to which attention has already been directed.

The revenue derived from industrial employment of inmates of State or other institutions, after the system has been inaugurated and in operation for a sufficient time to properly classify the patients and utilize their services to the best advantage, should more than equal the expense of maintenance. If an inmate had no previous occupation, he is gradually taught some simple form of employment, such as broom-making, basket making, etc. Representatives of all the various trades can usually be found among the inmates—shoemakers, tailors and other needle-workers, printers, carpenters and other wood-workers, etc., etc., who can do the necessary work in these lines required at the institution in addition to the various articles manufactured for sale; the services of florists and gardeners can be utilized in beautifying the hospital grounds, and the wards may be made more attractive by the presence of cut flowers grown and cultivated in greenhouses.

As already indicated, but few inmates will be found whose services cannot be utilized in some form of industrial employment, at least at intervals, if not continuously, during their stay at the institution, and the benefits to be derived from the industrial system are manifold and far-reaching.

The most important modern scientific advance in this connection is the installing in insane hospitals of expert pathologists whose duties are to study the

subject of insanity in all its various phases, with especial reference to its causation; to hold autopsies upon the bodies of those dying in the institutions; to make minute and careful examination of the cranial contents and spinal cord in each instance; thus is afforded the best possible opportunity for study of diseases of the brain and nervous system. Valuable information has already been acquired through these channels, but there is much yet to be developed.

Examination of recent reports shows that the expense of maintenance per capita per annum varies considerably in different institutions, from $130 to $300.

As previously indicated the institutions showing the greatest percentage of permanent recoveries in the shortest space of time are those in which industrial employment has been adopted, and this is the strongest argument in favor of the industrial plan of management.

Kentucky has three insane hospitals, the one at Lexington, established in 1824, being the first of its kind west of the Alleghany mountains, and if the writer be not mistaken, was the third institution for treatment of the insane erected in the United States. The Central Kentucky Asylum for the insane at Lakeland, through the indefatigable efforts of Doctor Thomas P. Satterwhite, President of the Board of Commissioners, has completed an industrial and amusement hall, which was dedicated with appropriate ceremonies on August 8th, 1903. The building is a handsome two-story structure erected at an expense of about fifty thousand dollars; the basement is the workshop for male patients; the first uoor is the amusement hall, including reading rooms, etc.; the second floor is the workshop for female inmates. Each of these departments has been especially designed, constructed, furnished and equipped for the purpose for which intended, and each is a model of its kind.

This is the first asylum in Kentucky to add the industrial feature to its system of treatment, and the results thereof will be watched with keen interest. It is anticipated that the services of at least seventy-five per cent. of the inmates can be utilized in some capacity under this industrial plan; that occupation, diversion and amusement thus afforded will largely increase the percentage of permanent cures; that the average length of treatment necessary to restore mental equilibrium will be materially shortened; that this addition will be of incalculable benefit to these wards of the State; that the influence of employment for the hitherto idle inmates will bring about many cures, where restoration is possible; that in hopeless cases the hitherto dragging days of miserable monotony will at least be made more pleasant.

—According to a cable despatch from Vienna, a newspaper for nervous persons is projected, which will handle startling occurrences in such an unexciting way as to permit sensitive individuals to keep *au courant* with the times without the needless shocks liable to be produced by usual chronicles. In this way the restful and unirritating environment so needed by many patients will not be broken in upon while at the same time they will not forego altogether the pleasures of enlightenment as to the world's progress. The worst thing about it, however, is the possibility of suggestion; a partial concealment or revelation is often the strongest stimulant to the imagination.

RECENT RESEARCHES IN NERVOUS DISEASES.

BY C. WILLIAMS, M.D.

As the minute anatomy of the central nervous organs is cleared up by the improved methods of modern research, and the whole harmonized with recognized functions, we find that our knowledge of this structure has been mislead and hindered by the awkward terminology left us by the older anatomists, and neurologists. Words are of the greatest force; to give a thing an inappropriate name—or, a half dozen of inappropriate names, all of them conveying no sense and difficult to remember—is to make exact and useful knowledge almost impossible. Unfortunately the brain has suffered severely in this way; having been a "terra incognita" to former generations, who having no distinct ideas of its division of functions, overloaded the science with a stock of names which for lack of meaning and uncouthness of sound is not equalled in any department of science. All this verbiage must be cast aside, and too much of it still lingers. "Why should the motor tracts be called "pyramids" and the sensory tract a feelet," or a "lemniscus?" Why retain the "pulvinar" of the optic thalamus, when by general consent the "nates" have been ignominiously pushed out?"

As yet it is useless to speculate as to what changes morphine brings about in the nervous system; we know that small amounts of the alkaloid coming in contact with the gray nerve-cells interfere with their vitality and chemical changes only in so far as to inhibit or depress their proper activity, whereas larger amounts cause much more profound changes, apparently leading to irregular and violent chemical action within them, which leads to similar irregular and violent discharges of nerve energy, followed by exhaustion. During the first condition the cells are more or less incapable of conducting impulses or of acting reflexly, whereas, in the second, they are completely changed in these respects, and respond vigorously to the slightest impression. It is impossible to characterize the changes more definitely. With regard to the action of morphine or motor nerves, great differences of opinion have been expressed by different authors. The older experimenters finding that the motor nerves were considerably depressed in electric irritability at the end of the potsoning, concluded that the alkaloid had a directly paralyzing effect on the end organs; while Stockmen and Dott find that very large doses of morphine do paralyze the terminations of motor nerves, but ordinarily death ensues before the depression is marked. With therapeutic doses in man it is hardly possible that even a trace o fthis action is present. With sensory nerves the state of affairs seems to be much the same—that is, if large doses could be applied directly to the nerve terminations, the morphine would act as a paralyzant to the nerve tissues, but by the ordinary methods of administration its effect is practically nil. Codeine is the methyl ether of morphine, a molecule of methyl having replaced one of the hydrogen atoms. Its action is exerted on the central nervous system, and has a close resemblance to that of morphine. It causes an evident narcotic stage, followed by a condition of increased reex excitability which amounts to tetanus if the dose be large enough. The narcotic stage is, however, shorter and much less deep than with morphine, and if large doses be given to animals, is often hardly noticeable, or may be quite absent. In man the narcotic effect is feeble; very small doses

depress the spinal cord, this being succeeded by an increase of reflexes; while larger doses cause tetanus, either at once or after a stage of depression. On motor nerves its paralyzing action is very decided. The narcosis is always slight; the animal can be easily aroused. There is no very marked analgesia, and when the dose is increased, this, instead of deepening the narcosis, causes a condition of reflex excitability.

Ethylmorphine is the ethyl ether of morphine, and is analogous to codeine. Bochefantaine has published a short paper on its physiological action, which he describes as being exactly similar to that of strychnine. He used such large doses, however, that he missed the preliminary narcotic effect. Stockman and Dott have concluded that ethylmorphine has an action similar, or nearly so, to that of codeine.

If the dose be properly chosen, one can easily distinguish in animals a narcotic and a tetanic stage. Amylmorphine in its physiological action was found to be similar to that of the two preceding bodies. In these three bodies, methyl-ethyl-and amylmorphine, the same hydrogen atom in morphine, has been replaced by an alkyl radical. They are, therefore, substitution derivatives; the action of all three substances is practically identical, and it seems quite indifferent which radical is introduced so long as it replaces the same hydrogen atom. Theoretically, there is possibly a difference in the actions of the three substances, but it must be entirely quantitative, not qualitative. In all the narcotic action of morphine is much diminished; the tetanic action and the action on motor nerves are increased; while the lethal dose, on account of the tendency to convulsions, is much smaller. This action is, however, of essentially the same nature as the morphine action, that is, the same parts of the central nervous system are affected, and in the same way, but not in the same degree.

Other substances, such as acetyl morphine, diactylmorphine, benzolmorphine, and dibenzolmorphine have been compared to morphine, and their action was found to be the same in kind, differing only in degree. Their tetanizing power is much greater, while their narcotic action, although visible after smaller doses, is never nearly so profound. Increase of dose, instead of deepening the narcosis, brings on tetanic symptoms. The depressant action of small doses on the cord, and especially on the respiratory centre, is very much greater than that of morphine. Compared with codeine, they induce an equal narcotic effect with about one-tenth of the dose; while about a three-times-larger dose is necessary to cause tetanus.

Chlorine, it is well known to physiologists, is a powerful muscle-poison, and its introduction into other groups makes the bodies so formed marked paralyzants of muscular tissue. The research was undertaken with the view of determining the influence of chemical change in the physiological action of certain alkaloids. From the examination of one substance it is unwise to draw any wide-reaching general conclusions. It seems certain that so long as the chemical changes are restricted to what may be called the outlying groups of the molecule, very little alteration takes place in the physiological action. The change which does take place does not depend so much on the substituting body as on what part of the molecule is substituted.

The word "Syringomyelia," was coined by Ollivier, who used it for the first time in 1837, in his treatise on the spinal cord, applying the term, in a general way, to any canal or cavity in the interior of the cord, considering the existence of a central canal as pathological. It was not corrected until Stilling, in 1859, exposed this erroneous view. He maintained that the central canal has a constant existence, an opinion which is now known to be right. The central canal of the cord being admitted, the word "syringomyelia," in the sense of Ollivier, had no longer any reason for existence and the word fell into disuse, being replaced by the word hydromyelia, but the knowledge of the true pathological process causing cavities in the cord was yet for a while in hopeless confusion. This confusion was increased when it was found that cavities are formed by disease in the cord, in complete independence of the normal central canal; and again, that the normal central canal may sometimes be dilated by disease into cavities. Simon, in 1875, observed that intramedulary cavities coexist with vascular tumors, to which he gave the name of vascular glimata, and that the cavity results from the softening of the glioma. Simon proposed to restrict the term "hydromyelia" to a dilatation of the central canal from whatever cause; and to use the word "syringomyelia" to designate cavities formed in glimatous material in any part of the cord. These views and this plan were endorsed by Westphal. The discussion of terms did not end until the observation of facts began, while the logical and anatomical studies of these conditions, unworks of Simon and Westphal stimulated the pathotil we have now a certain amount of definite information, and can afford to let terms, neither of which are altogether pleasing or apposite, take the places designated for them. We have now come to the period when syringomyelia appears to be generally recognized as a disease-entity, and accordingly to have entered entirely into its clinical phase.

Bruhl makes two divisions: (1) The "intrinsic," including, first, the symptoms of anterior poliomyelitis, especially progressive muscular atrophy of the so-called Aran-Duchenne type. Second, symptoms of posterior poliomyelitis, causing anaesthesia to pain, and to heat and cold, without abolition of tactile sensibility and the muscular sense. This is what Professor Charcot has called the dissociation symptom of syringomyelia, and, as it is claimed to be especially characteristic, it deserves especial notice. Third, symptoms of medium poliomyelitis, such as trophic disorders of various kinds. These three groups of symptoms are what mark syringomyelia as a distinct disease. The second division or (2) "extrinsic" symptoms, contains only such as complicate and disfigure this clear clinical picture. These are, first, spastic paralysis, due to sclerosis of the lateral tracts; and secondly, locomotor ataxia, due to the involvement of the posterior gray matter. C. L. Dana has studied the symptoms seen in the anaesthesias of hysteria and has shown that the most constant form of sensory anaesthesia is a limitation of the visual field. Then come disorders of the cutaneous sensations; of which the pain-sense is oftenest affected, then the temperature, and last the tactile sense. The muscular and articular sensibility is rarely involved, and while the color sense is sometimes implicated, the complete inversion of the formula is not seen. We must remember that the peripheral field very easily tires for color, so that a patient who at first could recognize a color in the outer limit of the perimeter, after a short time

is unable to do this. Limitation of the auditory field for high notes is common, and is usually associated with tone-deafness, while deafness to low notes is quite rare. The auditory disturbances are much oftener observed in connection with hemianaesthesias. The paryngeal reflex is usually absent on the anaesthetic side in hemianaesthetic cases, but it was not absent on the sound side, nor was it absent with the less extensive bilateral anaesthesia of the skin. The knee-jerk in hysterical hemiplegia was diminished or even temporarily absent. In paraplegia it varied. Taste and smell were not lost except in the hemianaesthetic cases. The frequency of the anaesthetic symptoms may be summarized thus: 1 Limitation of visual field. 2. Cutaneous anaesthesia. (a) Pain. (b) Temperature. (c) Tactile. 3. Auditory disturbances; bone-deafness and limitations of field. 4. Dyschromatopsia. The cutaneous anaesthesias are distributed quite often in zones or patches upon the extremities, being often unilateral. The anaesthesia is more marked the more widely it is distributed, or the more rigidly it is confined to one side. Like hemiplegia, it may be deepest on the arm, and leave the leg and face before leaving the upper extremities. The profoundest types are nearly always associated with some paralysis and tremor, and when the muscular sensibility is involved the paralysis is still more surely present. These facts all seem to point to a common cortical seat for motor and sensory functions. The anaesthesia, if unilateral, may be transferred by hypnotic suggestion or cutaneous irritation. The frequency of the loss of pain-sense in hysteria is a fact which other experimenters have confirmed. The temperature sense is more often disordered than actually lost. The tactile sense is usually a little affected in most cases, but it often remains relatively good long after pain-sense has disappeared. Hysterical ataxia seems to be relatively rare. Even in profound types of hemianaesthesia with hemiplegia the position of the limb may be appreciated by the patient. In general, it may be said that the hysterical monoplegias and hemiplegias carry with them the profounder sensory disturbances. In hysterical paraplegia often no anaesthetic disorder is discoverable. Anaesthetic hysteria is usually associated also with mental depression.

In making the tests for anaesthesia in hysterical persons the greatest care has to be taken; neither patients are refractory or become perverse and untrustworthy quickly. The examination of the skin and deeper sensations does not present so much difficulty. The eye-test, however, requires extra care, for it must be remembered that an apparent limitation of the visual field may be due to stupidity or perverseness, or it may be due to refractive errors, to optic trophy, or other organic eye-disease. A point in visual examinations of the field, also of importance, is the intensity of the light. Persons with a concentrated field for a white disk have a large field for a bright light; and by using bright-colored lights very different perimetric charts will be obtained. The symptom of contraction of the visual field, therefore, is one whose significance must be closely weighed.

There have not been many studies yet of the limitation of the auditory field, particularly for low notes. In testing here it must be remembered that some people are born deaf for high notes, and that in ordinary partial deafness the hearing of high notes may be most impaired. The test of hearing for low notes has been often made by me, and deafness rarely discovered, but it certainly is present sometimes. Bone-deafness usually accompanies the limited auditory field.

The characteristics of hysterical anæsthesia are, according to Dana: Its frequent presence in the retinal field, and its peculiar distribution here. Its distribution on the skin, affecting first the pain nerves, and its modification, disappearance, or transfer by metals, or suggestion, or cutaneous irritants. Its peculiar involvement of the auditory nerve, causing deafness to high and even low notes, as well as its dulling the hearing generally. The rarity of muscular and articular anæsthesia, except in connection with profound paralysis. The involvement of the taste and smell.

Widermuth recognizes a chronic psychic degeneration and a transitory insanity of epileptics. The former has long been known and is characterized by progressive mental impairment. The second appears in two principal varieties: (1) psychoses, with derangement of consciousness; (2) psychical alteration, without such derangement. Under the first of these comes the deep epileptic sopor, occurring in connection with severe paroxysms, in all degrees from the profoundest stupor to partial consciousness. To the suspension or clouding of consciousness may be added vivid hallucinations, which may give rise to a sense of fear, with impulses of violence, or to ecstatic delirium. These conditions are often associated with a paraxysm, occur rarely as an equivalent of the convulsive seizure and only exceptionally precede an attack. Cases of the second group are more common than those of the first. These again, may be subdivided into four varieties. In the first the degree of psychic alteration appears the same throughout the entire period of a series of paroxysms. In the second the mental condition is different and after attacks: depression precedes, exaltation follows, or the reverse; in some cases produced with photographic accuracy. In the third, the psychic change is apparent only after the seizure; while in the fourth, the one replaces the other. When the epilepsy is of cortical origin the psychic changes occur late, the mental weakness rarely attains a high degree, and the ethical defect is inconspicuous. Decided pre-epileptic or post-epileptic derangements are rare. Clinically, infantile polioencephalitis holds an intermediate position. The psychic disorders of multiple sclerosis range themselves in the same line. The important consideration from the standpoint of medical jurisprudence, is, that in addition to transitory insanity with loss of consciousness there occurs in association with epilepsy a group of mental disorders unassociated with loss of consciousness.

Shaw and Cripps have reported cases of general paralysis of the insane in which decided amelioration of symptoms followed trephining. For example one case is as follows: The patient was admitted with well marked symptoms of general paralysis, there being a history of a blow on the left side of the head inflicted fifteen months before; the patient complained of great pain in the region of this injury. The symptoms were typical and complete. The patient was trephined over the seat of injury with the object of relieving pain, of draining off fluid, and of lessening pressure. The trephine was applied just in front of the left parietal eminence. The bone was found to be moderately thin; a second disk was removed an

inch posterior to the former and the intervening bone was taken away. There was much bulging of the dura mater. A portion of the dura, arachnoid, and pia mater, somewhat less in area than the bone opening was dissected out. The scalp-flap was then replaced, the wound was drained and closed. The drainage tubes were removed the following day. Cephalagia disappeared entirely, and the memory was much improved. Beyond a certain sense of well-being there was no appearance of delusion. Motor symptoms were not influenced. He was discharged four months after operation, there being no mental disease beyond a slight dulness. A month later the patient's condition was about the same as when he was discharged from the hospital. He had procured a situation, but was unable to keep it, and exhibited some irritability of temper. Cripps also reports the sequel of the first case which was operated on by him as far back as 1889. The mental symptoms were entirely relieved, and the patient was discharged from the workhouse because it was impossible to keep him under certificate. In February of the next year, he had a severe attack of convulsions and, after lying in a comatose state for some time, died six months after operation. In his last convulsive attack, though there was a little pulsation, no bulging was noticed over the trephine-hole. This negatived the idea of obtaining relief from opening of the scar. On post-mortem examination the absence of bulging was accounted for by the fact that a very tense fibrous membrane had taken the place of the removed bone. About six ounces of fluid were taken from the brain. Cripps believes that, even if cure cannot be obtained by relieving cerebral pressure, great relief follows.

The cases as yet are too few in number to judge of the risk of operation. The other patient upon whom he operated, recovered sufficiently to have made a will which would have stood in a court of law. Possibly better results may be obtained by removing a much larger area both of the bone and meninges than has hitherto been done by other operators.

REMARKS ON THE ETIOLOGY AND DIAGNOSIS OF PUERPERAL SEPSIS.

BY N. SCHILLING, M.D., NEW HAMPTON, IOWA.

IT is known that puerperal sepsis is infectious in its nature and that it is a preventable disease. Such knowledge applied practically should result in its eradication and render its consideration at this time unnecessary.

It requires but little investigation, however, to be convinced that a discussion of this subject is still of more than historical interest. Regarding the frequency of puerperal sepsis, W. H. Wiggin says: "It seems strange that we are obliged to admit that puerperal wound infection, in the ordinary daily practice of physicians, is of almost as frequent occurence and is followed by as severe constitutional symptoms and with as high rate of mortality as it was fifty years ago." Ehlers makes the statement, that in Germany from four to five thousand women die annually from the effects of puerperal sepsis. Boxall comes to the conclusion that outside of lying-in hospitals the results in obstetric practice are as bad today as they were thirty or even forty years ago.

When we consider how "doubly precious" is the life of a woman at this time, it certainly becomes our duty to seek an explanation for a situation so deplorable. Theorists do not find the problem difficult to solve. In a great many journals and text book articles we find the following stereotyped expression: "The doctrines of asepsis have not yet permeated the rank and file of medical men." In other words, the frequency of puerperal sepsis in private practice is ascribed to the ignorance of the general practitioner. While it is not my purpose to extenuate our shortcomings, a feeling akin to resentment prompts me to say that such an allegation is untrue and unjust. To one familiar with the difficulties with which the doctor has to contend while conducting an average labor case, it is plain that the conditions which surround him are far from ideal and that therefore his results cannot be ideal. In a small dingy bed-room, with bed and patient destitute of everything that is clean, the thorough application of modern surgical principles is simply out of the question. Conquently infection of the genital tract will occasionally occur. That under the circumstances it does not occur, even oftener, may be regarded as one of nature's miracles. E. Bumm has the following to say in regard to this matter: "The main reason for the frequent inefficacy of antisepsis in childbirth lies in the very nature of the procedure itself, that is, in the difficulties encountered in carrying it out, especially in a private house. A surgical operation lasts a half an hour or possibly twice or three times that long, a childbirth lasts several, and frequently many hours; surgical operations are undertaken in suitable rooms, childbirth occurs very frequently in the midst of the most unfavorable surroundings; only experienced and carefully prepared hands come in contact with the surgical wound, the wounds of the birth canal are touched by the uncouth hand of the midwife, who during labor has many other tasks to perform. When we bear in mind, further, how difficult it is to disinfect the region of the genitals and, owing to its proximity to the anus, how difficult it is to keep it disinfected, even for a short time, we really have no reason to be surprised at the undiminished frequency of puerperal sepsis."

To the "rank and file of medical men" this statement from so eminent an authority is consoling as well as instructive. Obviously he means to emphasize the fact that in order to eradicate this malady, in addition to a competent and painstaking accoucheur, the lying-in patient must be provided with a clean room, a clean bed, and a nurse who really knows what "physical and bacteriological cleanliness" means. In other words, in order to avoid infection during and subsequent to labor the same aseptic and antiseptic precautions must be taken that it is necessary to observe in the performance of a laparotomy. It may be urged that in private practice such elaborate precautions cannot be carried out. If such is really the case it is only logical to conclude that the mortality from puerperal sepsis will not be reduced. In that case fairness demands that our censors revise their decree. Instead of ascribing the bad results in obstetrics entirely to the imprudence or negligence of the "rank and file," let them proclaim the fact that under present conditions, in many instances, it is simply impossible to utilize fully the principles of modern surgery in the conduct of labor. Let them exclaim with the poet: "Mit der Dummheit kämpfen Götter selbst vergebens." (With stupidity the very Gods contend in vain).

Let no one imagine that simply because he has attended a few hundred cases of labor without a death that his obstetric technique is perfect. A few years ago one of my professional neighbors assured me that in over nine hundred cases of labor attended, he had not had a single instance of puerperal infection. He very naturally felt proud of such a record. Furthermore, as many of these cases had been delivered under the most unfavorable surroundings, he was confident that his methods were equal to every requirement. When I reflect that few men are more competent and none more faithful in the performance of duty, it pains me to relate that this illusion has since been dispelled. It is not many months ago that I met him at the bedside of one of his lying-in patients who was suffering from a virulent puerperal infection from the effects of which she died eight days after confinement. Our superficial and uncharitable critics will not hesitate to render the verdict: "The doctor infected her." Is it not more likely that, for once, ignorance and dirt rendered his best efforts ineffectual? Had it been his privilege to attend this woman in a modern and well equipped lying-in hospital, this precious life would have been saved and five little children would not now be motherless.

Any febrile condition during the puerperium is always regarded with a great deal of apprehension by the accoucheur. Even without much additional evidence he is apt to conclude that infection of the genital tract has occurred. And yet such an inference is frequently a wrong one. E. E. Montgomery pertinently remarks: "Not every woman who has an elevation of temperature following labor is necessarily septic, for the parturient state does not render her immune to the ordinary ills of mankind." It requires no very large experience to be impressed with the truth of this statement. Six days after having had a miscarriage which was completed by the aid of a sharp curette, Mrs. H. became very ill. She had slight chills, a low fever and cold sweats accompanied by anorexia, prostration, a frequent, small irregular, soft pulse, intense headache, sleeplessness and frequent vomiting. The breath was foul and the tongue heavily coated. The urine was highly colored and scanty. Later tympanites developed. There was pain and tenderness over the entire abdomen, being most marked in the right inguinal region. Although vaginal examination revealed nothing abnormal, except some tenderness in the right side of the pelvis, to me it seemed plain that puerperal infection was the cause of this woman's illness. However, Doctor Landon of our city, who saw the case with me, made this timely suggestion: "Continue the calomel, one grain every hour for eight doses. Follow this with a tablespoonful of a saturated solution of magnesium sulphate every hour until those bowels move some more." This heroic medication was finally followed by about a half dozen copious, very offensive stools and resulted in the prompt recovery of our patient.

It needs to be emphasized that febrile diseases, other than puerperal infection, occur very frequently during the puerperium. At this time a latent tuberculosis may become active. The same may be said of cholelithiasis, gonorrhea and malaria. H. S. Crossen, of St. Louis, in a partial report of 800 cases of labor, reported twenty-nine cases of decided puerperal infection and thirty-six cases of intercurrent disease. J. F. Moran, in a series of 555 cases, reports a rise of temperature above a hundred in 116 cases. In only forty of these, excluding seven cases of gonorrhea, could the fever be ascribed to trouble in the genital tract. Mental excitement, sore nipples, engorgement of the breast, mastitis, influenza, scarlatina, typhoid fever, diphtheria, acute follicular tonsilitis, acute articular rheumatism, pleurisy, endocarditis, acute bronchitis, pneumonia, appendicitis, and retention of urine, are all conditions that we may be called upon to differentiate from puerperal sepsis. When we bear in mind that some of these conditions may be manifestations of a puerperal septic pyemia it is apparent that in order to arrive at a correct diagnosis a great deal of care and skill must be exercised. A brief history of the following case will serve further to illustrate this fact. Four weeks from the date of her confinement, Mrs. C. suddenly became very ill. She had a severe chill, a decided elevation of temperature, anorexia, intense headache and pain in the muscles of the back and limbs. She complained of no symptoms that directed my attention to the genital tract. I made a perfunctory external examination of the abdomen and as palpation elicited no tenderness, I promptly and confidently made a diagnosis of influenza, which disease was prevalent in the community at the time. The subsequent course of the disease, however, compelled me to make to those interested the somewhat humiliating confession that I had been mistaken in my diagnosis. The case proved to be one of puerperal septic cellulitis, a diagnosis which was afterwards confirmed by Dr. W. J. Mayo, who opened and drained the pelvic abscesses.

In fact, it would seem that the obstetrician who relies entirely upon clinical evidence as a means of diagnosis will surely make frequent errors in prognosis and treatment. In order to determine the exact seat and extent of an infectious process clinical observation needs to be supplemented by anatomical and pathological data.

No doubt it would be desirable if every general practitioner had the facilities and the skill necessary to make bacteriological examinations. However, it seems that up to the present time few practitioners are guided in the treatment of puerperal septic disease by he findings of the bacteriologist. Koblank concludes an article on this subject as follows: "In obstetrics bacteriologists are also at work—however, it must always be remembered that bacteriology has to do with many changeable and in part unknown factors, as virulence, immunity, disposition, etc. The inaccurate estimation of a single factor may destroy an entire calculation."

FORCEPS AND OTHER MECHANICAL AID IN OBSTETRICS: USE AND ABUSE.

BY W. A. ROHLF, M.D., WAVERLY, IOWA.

HIGHER civilization has made childbirth more difficult, the greater development of the brain, tending to increase the size of the fetal head. In the mothers a more highly organized nervous system with debility due to high pressure living, the demands of society and fashion, are conditions that conduce toward making childbirth more serious.

The obstetrician's art is keeping pace in assisting the waning forces of nature at this trying time, mechanical means often being employed.

Perhaps the most important mechanical instrument in common use is the obstetrical forceps. The early history of the true obstetrical forceps dates back to

the latter part of the sixteenth or early part of the seventeenth century. Its use limited to a very few, soon became into general use, when the secret held for a hundred years by one family, became public. The original straight forceps with a cephalic curve was modified by the addition of the pelvic curve in 1747. Except in the matter of lengths no special changes were made in the various forceps until the axis traction idea was developed by Tarnier. We now have various patterns, hundreds perhaps, with the general principles of cephalic and pelvic curves common to all and differing more or less as to length. Various devices for the application of axis traction have been devised from time to time. Any one of these properly curved and shaped instruments, skillfully and properly used is practical. As we become accustomed to a certain instrument it serves our purpose best. It is my privilege here to say that I prefer Simpson's forceps for general work. An axis traction forceps can be made by the application of a simple device attachable to any of these forceps. It is needless to say that forceps should be made of material that can safely be sterilized by boiling. From William's Obstetrics, 1903, I quote: "The forceps should be used as a tractor, rotator, compressor, dilator or irritator."

The primary function of the forceps is certainly that of traction upon the properly presenting portion of the child. This traction should be intermittent and gentle. Brute force here becomes an abuse of the use of forceps, unless the chance for severe lacerations is a secondary consideration. Primarily, forceps are not used as compressors, although compression results in a degree commensurate with the amount of traction. As rotators forceps become useful in occipito-posterior positions. As a dilator of the cervix its function is safer and efficient methods. inferior to several other safer and efficient methods. As an irritator of uterine contractions it seems to me that forceps have no special advantage, except gentle traction be made after their introduction.

INDICATIONS FOR THE USE OF FORCEPS.

—I quote again from Williams: "Strictly speaking, the termination of labor by forceps, provided it can be accomplished without too great danger, is indicated in any condition which threatens the life of the mother or child. On the part of the mother, such conditions are, eclampsia, heart lesions attended with broken compensation, acute edema of the lungs, hemorrhage from premature separation of the placenta, intrapartum infection or exhaustion."

"As regards the child, the operation may be called for by prolapse of the umbilical cord, premature separation of the placenta, undue pressure exerted upon the head, and especially by change in the rhythm of its heart beat and the escape of the meconium in vertex presentations. A fetal pulse falling below 100 or exceeding 160 to the minute, indicates that the child is in danger and will perish if not promptly delivered. In vertex presentations, the discharge of amniotic fluid tinged with meconium indicates interference with the placental circulation and imperfect oxygenation, manifesting itself by paralysis of the sphincter ani. In breech presentations, on the other hand, the presence of meconium is without significance, being due merely to pressure upon the child's abdomen."

This is probably a very scientific summary for indications for the use of forceps. I believe, however, that in our general practice forceps are and should be used when practical, after complete dilatation of the cervix. (They should never be used unless absolutely necessary before complete dilatation.) When the second stage of labor has continued for an hour or at most two hours, with a very slow descent of the head, forceps should be applied. Is there any need of continuing the agony of this stage? Why permit the suffering and acute struggle to continue to exhaustion? Forseps may be used to assist in overcoming a very unyielding perineum. I cannot see why forceps skilfully and carefully applied, and traction properly made, under these conditions should result in anything but good to both mother and child. However, we wish to deprecate the use of brute force and the untimely use of forceps for the sole purpose of saving time for the physician. I wish to be understood as believing that forceps are not used often enough, and that a greater amount of suffering could be prevented by the earlier and proper use of the obstetrical forceps. That their range of usefulness is larger and their use oftener indicated than the purely scientific or technical indications given in our text books.

In the matter of locking the forceps, great care is needed, but when certain of the presentation, and certain it is a case for forceps delivery, a little gentle manipulating of the blades, first one, and the other, will usually bring about the desired result. It would seem a safe notion to follow, that when the locking of the forceps is not reasonably easy of accomplishment, that one or both blades be removed and a re-examination made of the presenting part, and the reason of the difficulty discovered.

It is not necessary to mention that in all forceps deliveries, perfect aseptic conditions should be brought about, the details of which are not within the province of this brief paper. The pelvimeter, an instrument of practical value, is not as generally used as it merits. This simple device should be used in the early examination of primipara, and those multipara with history of previous hard labor.

Besides the knowledge the physician gains, the mental effect on the patient, when assured that the measurements are satisfastory, certainly is good. It removes some of the uncertainty in her mind and adds confidence in her physician, so valuable at all times, absolutely desirable in cases of confinement. The confidence reposed in a physician at this time he should merit and retain.

With hospitals springing up about the State so numerously, entrance there for cases of confinement will be practical anywhere in the State. Early diagnosis of pelvic deformity will be oftener made by using the pelvimeter as a sort of routine and much can be gained for both patient and physician. The hospital treatment of patients will become more popular, especially where surgical procedures are to be expected. Pelvimetry will aid in determining the probable necessity for Cæsarean section, induction of premature labor, etc., and none will deny that hospital advantages with its incubator and other conveniences will give better chances for mother and child. Let us increase the present growing hospital sentiment.

Among some of the minor aids in obstetrics we might mention the rubber pad. Various patterns are used. The Crandall pad is perhaps the best. These can be rapidly rendered sterile with lysol and boiling water. The advantages of the pad are: (1) Cleanliness as far as the bed is concerned. (2) Facilitates washing patient before and after labor. (3)

Admits of perfect sterilization. (4) Compact to carry.

The obstetrical slipper, designed to allow greater voluntary use of the abdominal muscles in the second stage, are not ordinarily to be used. At this juncture the pains are usually strong enough and the woman should rather be urged to desist from voluntary efforts at expulsion if possible. The tearing of the perineum will thus be prevented. The use of the obstetrical slipper, or any other method, that unduly increases voluntary efforts at expulsion increases the possibilities of this laceration, which is too frequent at best.

The catheter, so commonly used during and after labor, should be sterilized by boiling in sterile water. It does not seem best to keep them in antiseptic solutions on account of irritations following their use due to these agents. A soft rubber catheter is perhaps the most preferable, boiling in sterile water the best way to sterilize. The use of a dirty catheter certainly would be an abuse capable of producing serious results.

In this connection I wish to mention a simple and reliable method of tying the umbilical cord by means of a little device known as Kellogg's Tunis Applicator. This consists of a four-bladed sort of forceps by which a rubber band of proper size is quickly and neatly placed around the cut end of the cord. There is no danger from bleeding, as sometimes happens when a string is used. The instrument and rubber bands can readily be sterilized by boiling.

Bougies, hard or soft, are perhaps the best mechanical means for the dilatation of the cervix to induce premature labor. Abuse of these would consist in their use when induction of premature labor is not pathologically indicated. In the use of the soft bougie, the important point seems to be the high introduction between the membrane and the uterus. After twenty-four hours the bougie should be removed, cleaned and inserted on the other side of the uterus well up toward the fundus.

In this connection, I mention H. F. Gau's obstetrical dilator. I quote from Peterson and Lewis Practical Medicine, series April, 1902, page 130; "H. F. Gau has invented an obstetrical dilator which is intended to supplant the use of the hands where dilation is indicated. Among the advantages claimed is: (1) The shape of its oval dilating extremities tending to prevent lacerations of the cervix. (2) Aseptic construction of the instrument. (3) By introducing one blade of the dilator at a time the instrument may be inserted readily in a cervix admitting an index finger. (4) The first stage of labor, especially in cases of eclampsia, may be accelerated. The blades are introduced into the cervix separately and then locked. It would seem that this instrument might meet many indications and be superior over any other method as a rapid, clean and safe method of dilating the cervix.

In placent previa, DeLee claims the best results from the use of the colpeurynter.

Before closing, I wish to say that the obstetrician's hands properly prepared and skilfully used are sufficient in most cases of labor, and that neglect in the matter of their proper aseptic preparation a means of dire abuse.

To us physicians, the greatest boon and aid in our obstetrical work has been the discovery of the trained nurse.

HEART CONDITIONS DUE TO ANÆMIA AND HIGH ARTERIAL TENSION.

BY M. SHELLENBERG, M.D.

SIMPLE ANÆMIA is rarely fatal, so that post-mortem evidence as to the condition of the heart muscle under these circumstances is scarce. However, Ormerod, Virchow, Ponfick, and others testify to the influence of anæmia in producing fatty degeneration of the heart. Goodhart expresses the belief that in all forms of anæmia in women the heart's impulse becomes diffused and displaced outward; the heart muscle undergoes fatty degeneration; and the heart, especially the left ventricle, becomes dilated; he has demonstrated post-mortemly that simple anæmia from loss of blood, in adults of both sexes and of very varying ages, is associated with fatty degeneration of the ventricular walls and dilation of the cavities, while Bristowe says: "Dilation, which is sometimes the primary change in hearts that are simply feeble, not only impairs efficiency, but actually furnishes an incentive to cardiac exertion and overgrowth."

During the last few years Handford carefully examined the state of the heart in thirty-five cases of simple anæmia, chiefly in women, each case being under observation for several weeks and a few for a much longer period. As a result, he confirms Goodhart's statement so far as to say that in chlorosis and the simple anæmia of young women the heart's impulse becomes diffused and displaced outward almost invariably. He thinks the clinical signs point in these cases to right-side dilatation. Because the heart's impulse is invariably displaced outward, but generally little, if at all, downward, the right side is the one chiefly affected. The apex-beat is, in the vast majority of cases, in the fourth space, occasionally in the fifth. In horizontal positions the apex is usually in the nipple line, or a little outside it, but it varies from a half inch inside to one and a half inches or more beyond it. To compensate for the variable position of the nipple, make in addition actual measurements to find the apex-beat from three and a half to four and three-quarters inches, or further, from midsternum. Often the most forcible pulsation is in the third space, about one inch inside the nipple line, attributed to the impact of the middle or upper part of the anterior wall of the right ventricle. Rindfleisch, in speaking of hypertrophy of the right ventricle, says: "The heart's apex is no longer formed by the left ventricle alone; it is partly, or even wholly, formed by the right one. The apex-beat often becomes indistinct; in its stead we find a basic impulse due to the contact of the conus arteriosus with the chestwall during each systole, in consequence of the enlargement of the base of the heart in its antero-posterior diameter."

There is often a systolic murmur with its point of maximum intensity over the fourth left costal cartilage; indicating regurgitation through the right auriculo-ventricular orifice. There are many forms of anæmia; in some there are heart murmurs and in some not; in some the heart is enlarged and dilated, and in others not. Where the heart is dilated, several different conditions contribute to bring about this result. Again there are several murmurs in anæmia. Typical chlorosis is largely, if not wholly, a developmental disease, and hence, occurring at or about puberty. In some cases, severe

in point of intensity but small in numbers, the essential lesion is a "hypoplasia or congenital narrowness of the aortic system," a theory originally expressed by Virchow, and confirmed by Rokitansky, Quincke, and Fraentzel. Handford recorded a well-marked example, together with the post-mortem conditions. The heart varies much; at times when the general development is poor and there has been no undue bodily exertion, and the affection has lasted but a short time, the heart is abnormally small, corresponding to the dimensions of the aorta, like the heart of a child.

Again, at other times, especially when there has been rapid body growth, underfeeding, and a call for over-exertion, the heart is enlarged, dilated, and hypertrophied. "The vascular walls and their contents are both derived from the same mesoblastic tissues of the embryo. Let us suppose the unborn defect of developmental energy to extend not merely to the blood, but to the cellular lining of the vascular tree as well. A hypoplasia of the vascular system will then be inevitably associated with the hypoplasia of the blood." Generally in chlorosis, the full development of the aortic system is simply delayed; and the patients eventually get quite well. We find that the ratio of the different organs to one another varies in different individuals, only approximately approaches a perfect type. The brain and nervous system may predominate; in others the chest and respiratory system are usually developed; while some have a large bony frame-work; and yet in others, the liver or the kidneys are inadequate. Between the ages of twelve and fifteen in the female, growth and development porceed with extraordinary rapidity; stature and weight being both actually and relatively greater than in the male at puberty. The development of the vascular system may lag behind the requirements of the body; with this, much physical exertion may result in cardiac dilatation with serious consequences.

Idiopathic enlargement of the heart, affecting primarily the left ventricle, is due to prolonged high arterial tension, and this increase of arterial tension may follow cirrhosis of the kidneys, chronic arteriosclerosis, congenital narrowing of the arterial system or some obscure condition resulting from defective assimilation and elimination, connected probably with the presence of toxines; this is idiopathic enlargement of the heart without valvular lesions. Prolonged arterial tension is the principal factor concerned in the production of this form of cardiac enlargement, which may involve either the right side or the left side of the heart, or both sides.

Continued high arterial tension, independent of organic disease of the kidneys or blood vessels, seems to result in individuals belonging to the better class, who are more or less sedentary in occupation, and who are hearty eaters, having ample chest and protuberant abdomens. High arterial tension is also produced by uric acid circulating in the blood, producing uric-acidæmia. Here the condition of high arterial tension is in the working classes, being due to the strenuous and continuous labor of these individuals. The excessive use of tobacco, and the abuse of alcoholic stimulants is also a factor. Prolonged high arterial tension produces hypertrophy of the left ventricular wall. Increased blood-pressure acts as a barrier to the circulation within the arterial system; the left ventricle consequently takes on compensatory hypertrophy sufficient to enable it to carry on the circulation; so long as hypertrophy of the ventricular wall exists it is compensatory, but there comes a time, due to lessened nutrition, when the heart yields to the increased internal pressure and dilates. For example Babcock reports a case of a man whose history, which leads us to infer the existence of prolonged high arterial tension, probably secondary to chronic interstitial nephritis. "Two years prior to the beginning of his present symptoms, his nutrition was failing, since, as he states, his appetite had fallen off and he took but little nourishment. The heart muscle began to suffer in its nutrition, and one day under a violent strain the internal blood-pressure was too much for the resistance of the ventricular wall, and dilatation supervened. There was acute dilatation of the left ventricle. Symptoms began at once, as dyspnœa and cough. Probably, in consequence of unfavorable hygienic conditions, as well as the persistent, prolonged, high arterial tension, resulting from the renal diseases, the heart has been unable to regain its former compensation, and the symptoms are therefore due to the persistence of dilatation. His symptoms at present are not marked, but there will come a time in all such cases when urgent symptoms are produced, when the dyspnœa becomes so extreme as to amount to actual orthopnœa, and the increased tension within the venous system (the enlargement of the venous system) leads to pronounced disturbance of the functions of all the organs and the renal congestion, and sooner or later to the establishment of œdema. The symptoms are those of passive congestion, cough, with sero-mucous—sometimes bloody—expectoration, great cardiac dyspœa, more or less insomnia, or perhaps somnolence, great disturbance of digestion, leading to fermentation within the digestive tract, to consequent distention of the stomach and pressure upward against the already dilated right ventricle, engorgement of the portal system, leading perhaps to ascites, obstruction to the venous and lympathic circulation, leading to œdema of the lower extremities; this distress growing worse and worse, until finally the heart stops from either exhaustion or paralysis."

As a rule it has been my experience that if one were to depend upon percussion he might be deceived in these cases; the cardiac dulness frequently does not pass beyond the limits which are assigned to the normal heart; yet the individuals commonly have such ample chests that the distance from the sternum to the nipple line indicates an enlarged heart. In one case the left nipple was three and three-quarters inches from the left border of the sternum and the cardiac dulness passes an inch farther to the left; The transverse area is increased to the right; here diagnosis depends upon the evidences by careful percussion of enlargement of the heart; auscultation showing no evidence of valvular lesion. In this case the heart-sounds become faint and muffled, the first sound losin gits muscular element, and the second aortic sound revealing high arterial tension through its accentuation. From the history of the habits and occupation of the patient, or by the discovery of some condition within the arteries or the kidneys, as chronic arterio-sclerosis or chronic interstitial nephritis, and by the symptoms of respiratory and circulatory embarrassment with the rapid, feeble, arhythmic pulse, the case reveals itself as one of cardiac enfeeblement, due to dilatation following hypertrophy.

In what Hanford calls "gastric cases of anæmia," di-

latation of the heart and cardiac murmurs are slight or absent. By this term he means those which commence with or are early associated with gastric ulcer or chronic gastric catarrh. In these the general nutrition usually fails, and the state of the heart is one of atrophy rather than of hypertrophy, and hence cardiac murmurs are absent. In these various forms of anæmia where the heart is dilated or hypertrophied, or both, the change is due to one or more of the following causes: Congenital narrowing, or delayed development of the aorta, and the aortic arterial system, requiring greater pumping power to supply the needs of the circulation. Increase of resistance in the peripheral part of the circulation from unequal changes in the specific gravity of the component parts of the blood. Malnutrition and degeneration of the cardiac muscle from the circulation through its walls of blood deficient in some of its proper constituents. A larger bulk of this flabby, degenerated, or relaxed muscle is required to do the same amount of work as the smaller bulk of normal muscle in good tone will do. Hence hypertrophy rapidly follows on dilatation. Overwork, especially associated with construction of the chest and waist, makes it common in females. There are many different cardiac murmurs commonly audible in anæmia, but they are all systolic in rhythm. The commonest and the one most typical of anæmia, is that with its point of maximum intensity in the pulmonary area. The next most frequent murmur is found at the left apex, being a true regurgitant murmur, due probably to relaxation and dilatation of the left ventricle, together with the relative incompetence of the mitral valve.

Rheumatism is very common in anæmia; in some of these cases there is probably rheumatic valvulitis. Systolic murmurs are not uncommon too, ,in the tricuspid area, due in all probability to dilatation of the right ventricle and relative incompetence of the tricuspid valve. A systolic murmur over the aortic cartilage is rare in such cases, and it then often apparently due to organic-disease, except in those instances where it is only communicated from the pulmonary area, and is not independent. These murmurs disappear in the following order, viz.: tricuspid, mitral, aortic, pulmonary.

These distinct murmurs in anæmia have led to much confusion in the discussion of their etiology. The most characteristic murmur is the pulmonary, so-called hæmic, systolic murmur which is not due directly to blood changes. There are three distinct classes of murmurs called hæmic, namely: the venous, the arterial (those produced at the orifices of the pulmonary and aortic arteries), and the purely cardiac (those audible over the mitral and tricuspid openings); and they have all been for many years attributed to altered blood conditions.

Richardson found that if an animal is bled until it is feeble, an anæmic murmur becomes apparent; but if large quantities of saline solution be injected into the vessels, so as to compensate for the loss, the murmur does not disappear; similar experiments prove that the altered condition of the blood has to do with the generation of this sound in the chest. And, fortunately, we have a chance to prove the point in question; recently, in a case of diabetic coma in a woman aged twenty-five, Dickinson introduced into the veins of the arms 106 ounces of saline fluid in the course of one and a half hours. Next day, the patient having relapsed into a state of coma, 350 ounces were allowed to flow from a funnel into the veins of the leg. The patient recovered consciousness completely after three-quarters of an hour, but ultimately died. Within the space of thirty-two hours 456 ounces of saline fluid had been introduced into the veins. The heart-sounds were feeble, but there was no murmur either in it or the great vessels. And yet the blood must have been very hydraemic. The characteristic of the so-called hæmic, pulmonary murmur is that, though audible frequently in all the areas, its point of maximum intensity is in the second or third left interspace, close to the sternum; and that it invariably becomes much less loud, and frequently totally disappears in the erect position.

This murmur may be accompanied by pulsation in the episternal notch, or in the second, third and fourth intercostal spaces near the sternum. The murmur can be intensified by raising the patient's hips on the foot of the bed, but it is unchanged by turning the patient on the left side. The murmur generally becomes much fainter when the patient lies on the right side, and disappears when turned on the face.

When the patient stands, the heart palpitates, or at least becomes duly accelerated; and under these circumstances observations are difficult. The murmur usually disappears, or it becomes difficult to differentiate, but after a few minutes the heart usually quiets down. This pulmonary systolic murmur, disappearing in the erect position, is due to the pressure of an enlarged, flabby, and dilated heart on the pulmonary artery.

Many and varied have been the explanations of the cardiac murmurs of anæmia; for example, Marey supposed these bruits to be due to a diminution of arterial tension facilitating the production of sonorous veins at the arterial orifices. Diminution of arterial tension is not sufficient to account for the production of a murmur; and, moreover, in many of these cases of anæmia we have seen that the arterial tension is increased. Naunyn's theory, endorsed by Balfour, is that the murmur is due to regurgitation through the mitral orifice into the left auricle, and that the point of maximum intensity of the murmur is not over the pulmonary artery, but one and a half inches or more to the left auricle comes up from behind; the point of maximum intensity has been, in the majority of instances, over the pulmonary artery, or over the conus arteriosus near the sternum. Again the dilatation of the right ventricle so common in anæmia tends to push the left auricle still more to the back.

The strongest ground for rejecting this theory is, that in no small proportion of cases a systolic murmur, differing in character from the pulmonary one, can be heard at the apex, and is propagated for one or two inches toward the axilla, while the pulmonary murmur is audible in the usual position at the same time. The pulmonary murmur disappears on the patient standing erect, the apex murmur does not. And in many cases, after suitable treatment by rest, etc., the apex murmur disappears even in the horizontal position, while the pulmonary murmur remains for some weeks longer. This seems to be sufficient evidence of the independence of their causation. There can be little doubt that the apex murmur is due to regurgitation through the mitral orifice, in some cases from shrinking of the valve from valvulitis; in most, probably, from dilatation of the orifice, or from inefficient contraction of the muscles of the base, or from general relaxation of muscular tissue.

It is by test of position that the pulmonary mur-

mur, when loudly audible in the other areas in the horizontal position, can be distinguished from true regurgitant murmurs, due to relaxation of the heart muscle, or dilatation of its openings, or valvulitis. When in anæmia there are murmurs in all the areas, not due to permanent changes, they disappear during convalescence in a definite order, namely: first, the tricuspid, next the mitral, then the aortic, and lastly the pulmonary. With judicious treatment the murmurs, except the pulmonary, may cease in a fortnight to six weeks; but the pulmonary murmur, though less loud and distinct than heretofore, is generally audible in the horizontal, supine position for several weeks, and sometimes months, longer, notwithstanding an increase of weight on the part of the patient seven to fourteen pounds or more, and a corresponding improvement in color and general condition. and lastly, it is probable that in some cases anæmic enlargement of the heart leads to permanent heart disease. In order to learn whether anæmic elargement of the heart ever leads to permanent heart disease, it is necessary to keep the cases under observation for some years, and that I have not been able to do. Of two cases that I have been able to examine at the end of two years or more, one had a permanent aortic systolic murmur, and the other a mitral systolic, but the pulmonary murmurs had gone. There was slight enlargement.

It is not improbable that if more cases could be followed out permanent alterations could be found to be more common. Dr. Goodhart has suggested that there may be some connection between the great predominance of mitral stenosis in females, and the heart-changes of anæmia. He says: "Anæmia, by the dilatation it set up, and the regurgitation through the mitral valve, may be the etioligical factor in the unexplained considerable minority of cases of mitral stenosis in women which cannot be attributed to rheumatism. If the importance and extent of the heart-changes are recognized the treatment is not difficult. It may be summed up in a few words: rest, food, aperients, iron. Complete rest in bed for a week or ten days, with half the day in bed for another week or fortnight, is a therapeutic measure of great value. Relieve the over-distended left ventricle and whip the heart on to increased vigor or contraction for this purpose, hydragogue cathartics are indicated, as they lessen arterial tension; calomel or blue mass lessens arterial tension even before its effects are manifested on the intestines, follow this by saline. We find that digitalis, strophanthus, and their derivatives are not suitable here in the stage of loss of compensation for digitalis, and to a less degree strophanthus increases the resistance within the arterial system. It is preferable to administer an arterial stimulant. For this purpose Fraentzel, who is our great authority on this subject states that his favorite combination is tincture of castor and ammoniated tincture of valerian; diffusible stimulants, like camphor, ether and ammonia, and alcoholic stimulants. Rest and cardiac stimulants improve the condition speedily, and if the diet be carefully regulated, the patient being at first limited to a "milk diet," the urgency of the symptoms will pass by in a few days. Caution against much exercise, but the dyspnœa they experience will prevent too active exercise at first. It is better for patients to walk quietly on level ground than to stay too long in bed after any urgency has passed, then attempts may be made to strengthen the heart-muscle by the prolonged administration of strychnine salts, and by the judicious use of gymnastics. "Swedish movements" have become a popular form of exercise for the heart muscle in Europe, although Oertel's mountain climbing is not at all appropriate. But careful testing of Oertel's method has demonstrated without doubt that it is highly beneficial for cases of threatened loss of compensation, cases in which hypertrophy still predominates over dilatation. Idiopathic enlargement of the heart, even after compensation has been lost, is benefitted by the Schott or the so-called Balnelogical gymnastic method, using baths and gymnastic exercises. Used in Germany for more than twenty years, and elaborated by two German physicians, these practises are carried on in its perfection at the watering place, Bad Nauheim; saline baths of cool temperature, tepid, and baths which are charged with carbonic acid are given. They are given weak at first, and the temperature is about 92° F., and the time of bath is from five to eight minutes. As the strength of the heart increases the baths are strengthened in their saline constituents, and finally baths containing carbonic acid, together with the salts, are given; at the same time the temperature is lowered until patients are subjected to baths at a temperature of from 87° to 86° F. The patients can endure baths of twenty minutes' duration now, given daily with occasional intermissions. A common plan is after three baths to give patients a day of rest, then three more and another day of rest. After bathing the patient lies down for at least an hour. The patient experiences chilliness on entering the bath, and this chilliness usually passes away within a minute. While the dyspnœa gradually grows less, and although it may not disappear with the first or second bath, it does so later. The patient remains perfectly quiet immersed to his neck, and after the first plunge he experiences a delightful glow of the body surface. The pulse becomes slow, stronger and fuller. The heart, as a result, diminishes in its area of cardiac dulness; careful percussion of the heart before and after the bath, showing actual diminution in the size of the cardiac area. The heart beats more slowly and energetically, and is the better able to empty the over-distended cavities. The effect persists for a considerable time, and if the patient rests, and does not subject the heart to any effort, the pulse stays slow, strong and full for several hours. Cardiac murmurs, almost inaudible before, become distinct after the bath, and conversely some murmurs which exist before will disappear after the bath, when those murmurs have been due to cardiac dilatation, to mitral insufficiency. The heart sounds become stronger and the undue accentuation of the second pulmonary sound diminishes, the increased strength of the second oartic sound indicating a better filling of the arterial system. With these baths are given gymnastic exercises, consisting of movements of extension, flexion and rotation of the extremities and trunk, the principal of these exercises being that they must be exerted against resistance applied by an assistant. The exercises are made slowly and steadily, without jerkiness, with only such resistance as can be borne without producing undue pulse acceleration or respiratory trouble. The gymnastics produce the same effects as those produced by the baths; the pulse becomes slower, stronger and fuller, and the over-distended heart will actually diminish in size after the judicious use of these exercises. Such a

course of combined baths and gymnastics is given for an interval of perhaps two months. Cardiac disease, excepting those in which heightened arterial tension would be disastrous as, in widespread and extreme chronic arterio-sclerosis, aneurism of the aorta, or other large vessels, or cardiac aneurism is benefited by such treatment; while conditions in which valvular lesion exists, or in which the muscle of the heart has lost its tonicity, are greatly benefited, and many times can be reinstated in perfect compensation; in fact, all conditions of the heart in which the muscle-fibre has retained sufficient integrity to be capable of regeneration are benefited by these baths and exercises.

RETROSPECTIVE THERAPEUTICS

Subcutaneous Injections of Atmospheric Air, in Neuralgia.—In Bulletins et Memoires de la Société Médicale des Hôspital de Paris, Dec. 18, 1902, Marie and Crouzon report the results of their experiments upon the treatment of neuralgia by subcutaneous injections of atmospheric air, describing their apparatus in detail. The results of the injections were marvelous. A woman with severe sciatica got up and walked about immediately after the injections at the site of pain, though the pain had been intense before. In other cases, with lumbago, tabes, herpes zoster, neuralgia and neuritis, the results were equally striking. It is absolutely harmless and wonderfully efficacious. Chauffard reports similar results in a woman with intercostal neuralgia.

"Do not make the mistake of cutting off anything. If the end of a finger is hanging on by nothing but a very thin tissue, lay it on and leave it alone. Do not put in any stitches. It is bad surgery. You may carry an infection up the hand, and instead of getting a closed wound, you may get an infection that may cost the patient his finger, hand, or life. Put the limb in a position where it will be quiet, cover it up with gauze and cotton, use a splint if necessary to hold the limb in position, and then keep it wet with a 2 per cent. solution of carbolic acid. Do not put on a tight bandage. Then the time will come when the tissue that you thought was gone will be good tissue.

For Habitual Epistaxis.—In habitual epistaxis, without regard to the cause, the frequency of the attacks, or their severity, Woodward says ("Med. Summary"), ammonium carbonate is an absolute specific. Two grains every ten minutes will stop the flow quickly during the attack. To correct the tendency and overcome the habit, two grains should be given from three to six times each day. He has depended upon it for twenty-five years without a single failure, and obtained the suggestion from a physician who had used it for nearly as long a time before him.

Veronal, a New Soporific.—Veronal, discovered by Emil Fischer and Von Mehring, seems destined, according to Lilienfeld ("Berl. Klin. Woch.," May 25, 1903), to supply the practitioner's demand for a really perfect and universally applicable soporific. After reviewing the whole sleep producing material of the Materia Medica, with its manifold shortcomings, Lilienfeld gives a recital of favorable results gained in tentative practice joined with Goldstein. Veronal is represented as a colorless and odorless, beautifully crystallizing body of mildly acrid taste, which melts at a temperature of 191° C. Lilienfeld and Goldstein began with doses of 1.0 1-5 gram, but soon satisfied themselves of the hypnotic power of their remedy asserting itself after doses of 0.5 gram, a quantum satis bringing about in the large majority of cases a sleep of 7 to 9 hours' duration. In sixty cases of insomnia caused by neurasthenia, hypochondria, hysteria, melancholia, incipient progressive paralysis, heart disease, etc., etc., 450 single doses of the new remedy proved it to be far superior in certainty, and intensity of effect to any other known hypnotic, and of almost universal application. Patients take kindly to veronal, when given in a cupful of hot milk or hot tea, the dose taking effect within a quarter of an hour. A dose of 0.5 gram leaves no after effects; 1 gram and more, leaves the patient drowsy and somewhat tired the next day. Repeated doses establish no toleration, create no disturbances, and leave the urine free from albumin. A female morphinist, during and after cure, took every evening 0.5 gram for two months, and at the end of that period slept as well as after the first dose, while 1.5 gram of trional left her absolutely sleepless. In contradistinction to all other hypnotics, veronal is a priceless ally for the physician, combating his arch enemy in the fight against the morphine habit—obdurate sleeplessness of the patient.

Chloroform in Typhoid Fever.—Dr. Jose Sureda Massenet, at the recent meeting of the international Congress of Medicine ("Lancet," May 9, 1903,), read a paper on the use of chloroform in typhoid fever. Chloroform, according to Massenet, is not any more than any other drug, in the present state of our knowledge, a specific in typhoid fever. It has, however, a marked effect upon the infective process, as shown by its beneficial action upon the various portions of the affected organism. Thus in the case of the nervous system the use of chloroform does away with, or at least minimizes, the phenomena of ataxia or extreme weakness (adynamia); in the case of the digestive system it prevents diarrhea and atony and disinfects the stools; in the case of the thermogenetic system it reduces both the actual height of the temperature and total duration of the fever. In the case of the cardiovascular system it strengthens the arterial tension, which is so prone to give way; and upon the excretory system it has a favorable action so that the toxic bodies are more easily got rid of. Owing to its primary qualities chloroform exercises a soothing effect and has a favorable action on the course of the disease. In most cases it shortens the duration of the illness, prevents complications and relapses, and by increasing the powers of assimilation reduces to a minimum the period of convalescense. It is given solely as a drug, and by using it in the form of a one per cent. solution it has been found that in 167 cases of typhoid fever, treated over a period of seven consecutive years, the mortality rate came out at six per cent. Given in this way the drug is well tolerated, is easy to administer, and is not repugnant to the patient, even when it is taken without intermission for a long space of time. The earlier the drug is taken the more efficient is its action, and prevents rather than overcomes the graver prenomena of the disease.

Electric Wet Packs in Nervous and Mental Diseases.—Rutkovsky has been advocating for some time local wet packs through which electricity is conducted, and now describes two cases in which the entire body was packed with these electric compresses. Both were women, one a physician addicted to morphine, the other a case of neurasthenia, nemia, insomnia, etc. Marked benefit was derived in both.

The patient is wrapped in a sheet wrung out of hot water, all but the head and one hand being thus covered. The cathode is applied to the feet and the anode, about 100 sq. cm. in size, is placed on the palm of the exposed hand. The current is turned on to the strength of 2 to 5 milliamperes for twenty to thirty minutes, reducing the strength whenever tingling is felt in the hand. The electric compress was applied twice at an interval of five days in the first case, and then several times later, and the patient said that she had never felt so well in her life; appetite and sleep have returned, and morphine has been abandoned. In the other case the neurasthenia inclined to melancholia with tendency to suicide, and the electric packs were supplemented by massage and suggestion. This treatment was successful after failure of all other measures after months of trial.

Facial Neuralgia.—A new and simple method of relief for this condition (says "Health"), is brought forward by Dr. W. C. Belt. It is simply to direct the patient to place the hand opposite the side on which the neuralgia is felt in a basin of water as hot as can be borne. He claims that relief will be experienced in less than five minutes. His explanation of the action of this procedure is that the two nerves endowed with the greatest number of tactile nerve endings are the fifth and the median, and their motor areas in the cortex are not only adjacent, but actually overlap. As the fibres cross in the cord he expects a powerful tactile impulse conveyed from, say the left hand, to affect in some degree the cortical centre of the fifth nerve of the opposite side.

The method is so simple that it may be tried in a number of cases, and if without benefit, it will be without harm.

Dietetics. Two well-defined conditions of proper diet are given by Hutchison ("Lancet"; Jrnl. A. M. A.) as: 1. That the food yields enough potential energy to supply the daily outgoings in the form of heat and work. 2. That it contains enough proteid to replace the daily and inevitable destruction of tissues. Somewhere between 2,500 and 3,500 calories will be required; probably 3,000 represent the requirements of the ordinary town dweller, and part of this must be supplied in the form of proteid. Whether this is obtained mainly from carbohydrates or fat depends largely on the digestive capacities of the individual and, to some extent, on his purse, as fats are more expensive than carbohydrates. As to the amount of proteid required to supply the waste, there is not full accord. The 120 grams recommended by Voit is larger than is considered necessary in many cases, but we do not know the minimum below which one cannot go with safety. The tendency to overeat is responsible for much disease. A food giving a maximum of volume with a minimum of nourishment would be a godsend to many overfed persons. The excess of the proteid diet is principally responsible for much kidney and uric acid diathesis. One principle we must bear in mind is the interdependence of organs. We cannot cut down the diet to treat a diseased stomach or kidney at the expense of the general nutrition. Ordinarily abrupt changes in the diet are to be avoided. He says there are only three great groups of diseases in which one can reasonably anticipate that dietetic means will be potent to cure. They are: 1. Diseases of the organs of digestion; 2. Diseases of metabolism, fevers, obesity, malnutrition, diabetes and gout, where there is a perversion of the usual methods of dealing with nutrition, and, 3, diseases of the excretory organs, especially the kidneys. As regards dyspepsia, Hutchison remarks that the mechanical form of food is always of more importance than its chemical composition. The meals of the dyspeptic should be small and contain no insoluble ingredients. The stomach should be humored to pass on the food. In most cases of functional disorder he thinks it well to give the stomach a little wholesome neglect. Overeating may be a serious evil. In bowel troubles we should consider the mechanical condition of the food. One should select a diet in diarrhea that has as little unabsorbed residue as possible. With constipation the opposite should be the aim. In fevers, it is a question, Hutchison thinks, whether we have not gone too far in the reaction from starvation. In all forms the carbohydrates should enter freely into the diet. Obesity is a disorder in which it is easy to overestimate the effects of diet. The proteids are less likely to cause harm than the carbohydrates and fats. Restriction of drinking at meals prevents overeating. In diabetes there is a pretty general uniformity as regards diet. In renal disease Hutchison would follow the common opinion that in acute nephritis, especially when blood is present in the urine, an exclusive milk diet gives the best results, but in chronic nephritis affairs are more complicated. We should keep up a vigorous heart. Meats should not be excluded, but foods which contain only the extracts of meat without its albuminous elements should be rigorously avoided. Restriction of fluids in cases of dropsy is not contraindicated, and he would have no hesitation in recommending the dry diet for such patients.

Shall We Make Our Consumptives Social Outcasts? J. Howe Adams writes ("Med. Age") that in a region of the Adirondacks where, until two years ago, consumptives were treated with consideration and kindness, they are shunned and ostracized, and many hotels are announcing that no consumptives are taken. The feeling is not confined to the Adirondacks; we find Legislatures of States seriously considering the exclusion of foreign consumptives; we find railroad directors studying the idea of separate cars for consumptives. Before we know it we shall have this unfortunate in the same class with the leper. The author suggests that local boards of health find the unsanitary spots, the unhealthy houses in the various cities; watch them; have them rebuilt and improved—register places, and not people. Too much stress has been laid on expectoration as practically the sole source of infection. Caged animals in zoological gardens are peculiarly liable to tuberculosis, and yet they are not spitting animals.

—Col. J. Elliott, of Toronto, the "Hospital Record" says, complains indignantly of what he calls the "brutality of many trained nurses." He says of these: "First, they get trained into them a certain amount of medical skill, shaking up pillows, taking temperature, pulse-feeling, and keeping records of the latter; secondly, they get trained out of them all the attributes which God has placed in the soul, heart, and mind of man and woman (especially in the latter), such as love, tenderness, gentleness, and such like; they have trained into them callousness, coldness, indifference to the sufferings of others, independence, rudeness, impatience, self-opinion, will power in a wrong direction, and every other such like opposite to the better part of a human being."

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That which persists unchanging in quantity, but ever changing in form, under these sensible appearances which the universe presents to us, transcends human knowledge and conception—is an unknown and unknowable power, which we are obliged to recognize as without limit in space and without beginning or end in time.—Herbert Spencer.

THE NEW YEAR.

THE new year opens auspiciously along the whole line of scientific investigation, and nowhere is it more evident than in the field of medicine and surgery. Tremendous progress is being made in all departments, new appliances, apparatus, and procedure are taking the place of the old to great advantage, new drugs are being discovered and new uses of old ones developed, and in order to keep pace with these times, one must keep constantly on the alert, occupying every moment to best advantage. It is an easy matter to waste valuable time, it is evident all about us, and nowhere more so than in our own profession. It is well known that the busy man is the one who is always ready to do more, because he knows how to systematize his work, and is economical of his time.

It is the one who fusses over his labor, wastes half his time in non-essentials, that is always in a hurry, and never gets there, who is constantly complaining that he has no time!

This is a good season in which to make new resolutions, to interrogate ourselves as to our moral character, our sense of justice, our generosity and our sincerity.

The moral character is easily degraded, needs constant watching and most scrupulous safeguarding. The sense of justice becomes biased by constant contact with the unjust, and the impulse to generous deeds is sorely tried by the lack of suitable appreciation of one's best services generously applied, or of that gratitude which is justly due. The physician must aim to avoid all degrading influences, to do his duty in accordance with the highest interpretation of the golden rule, as regards the public as well as his fellows, because he belongs to a most humane profession that should be divine. There is a lack of faith in each other because of the existence of deception, falsehood and humbug, which each individual of us should try to reform. If we do not expect the millenium, we can at least hope for it, and that is better than nothing.

Modern methods of obtaining practice are open to most serious criticism, the public is aware of it, and the profession as a whole has to suffer in consequence. Some are not seeking to cure the patient in the safest, quickest and most durable manner. Who amongst us is doing as he would be done by? Let him who is without guile answer.

The trend in therapeutics is to investigate everything and the survival of the fit follows.

No one dogma or principle is sufficient to cover the whole domain of medicine to-day. There are hosts of theories and "cure alls," even in the profession, which have no foundation, and over which many are deceiving themselves.

We must not stop where our ancestors did, but rather progress, develop and make the best use of our resources as they did. Wonderful strides are being made in all branches of our science and art, and it behooves us to keep abreast of them, but this requires constant toil. It is bewildering, as we well know, to look at the mass of literature at our command, and nothing but systematic persistency will overcome it.

Medical theories and practice are undergoing great evolution, generally for the better, and if we would do the best for our confiding patients, as well as for ourselves, we will keep pace.

Hare has well said in his introduction to "Practical Diagnosis," that the objective symptoms seen by the physician, the subjective symptoms described by the patient, and the so-called physical signs are to be joined together in forming a diagnostic view of the case. It is fair to infer that all this is to be taken into account, in selecting a remedy, and this leads to the highest ideal of medical art, namely, the individualization of the case. In doing this, no one should be bound by dogmatic assertion, he must be governed by well-founded scientific principles of precision.

We did not start out to preach a sermon, but simply to say a word which might lead some one to a better life, to be honest with himself, and thus become the means of adding a mite in this season of good fellowship.

To our readers, one and all, we extend hearty good wishes and "Happy New Year!"

HERBERT SPENCER.

THE death of Herbert Spencer, at the ripe old age of nearly eighty-four years, removes from the world of thought one of its greatest promoters. It may be said without fear of contradiction that he was one of the greatest thinkers and writers of his time, which covers an important era in English history. A critical study of the story of his career would lead beyond our space, and we must be content to refer to his life in the most general way. He possessed, to a remarkable degree, the ability to make people think, no matter whether they agreed with what he said or not, and this was an important service.

Whether his work was along the lines of pure philosophy, or in the consideration of abstract principles,

or whether it was devoted to applied philosophy or given to the social and political relations of his race, all he has done has been in the direction of stimulating thought, of elevating and broadening the intellectual vision and in this way advancing the mental and moral welfare of others.

He taught men not only to look for a unity in nature and in life, but he helped in the development of the law of evolution as a universal process more than any of his contemporaries, because of the simplicity of his teachings, its completeness and its convincing substantiality of interpretation.

The philosophy of evolution has so saturated human thought, that it is difficult to realize our ignorance of the subject prior to Spencer's time, and what has been accomplished in thirty years by his marvelous constructive effort and wonderful exposition. He was the founder of a scientific sociology upon an evolutionary basis, which seems to us both sound and practical, because he has shown how conduct and character are developed, and how the fit survive. Some think that his principles of ethics will prove to be the most practical part of his philosophy.

It is the influence of earnest, truthful men like Spencer, who have changed the views of thinking men in respect to theology, rational science and the origin and end of man. He may be fairly considered the discoverer of the principle of evolution, one of the grandest achievements of the nineteenth century, and as a moralist he certainly occupies the front rank. His work was all inductive upon a biological foundation and will be permanent. He was religious in the highest sense, and profoundly reverent on sound principle.

In the passing of such an herioc and we might say peerless figure from this remarkable intellectual era, it will be useful for each individual to try to sum up for himself what he conceives to have been accomplished by this great thinker, and try to mark those points which are to become everlasting, in the endless development of the world, of service in modern scientific research and of help in the reconstruction of the theory upon which the universe was founded—a work which has only just begun.

If his physical health had been equal to his mental capacity, the world would have been the gainer. Perhaps the fault was due to impaired refraction, a condition so often found to be the cause of reflex phenomena of various kinds, as has been claimed to have been the case with some other men eminent in letters. It is to be hoped, however, that this means of relief was not overlooked in the case of Mr. Spencer.

The medical profession is indebted to him for a philosophy which is inclusive and will be of service only so far as it is understood and applied. He is worthy of our respect and emulation. His severest critics may learn a lesson from his self-sacrificing life of consecration to the truth as it appeared to him.

THE LATEST VIEWS ON RADIO-THERAPY.

THE discovery of the X-ray by Roentgen of Würzburg, Bavaria, in 1895, stimulated chemists and physicists to re-examine the old moleculer theory which had been universally accepted by the scientific world. As a result there has arisen the new theory of "ions" and "electrons," while subsequently we have the phenomena of radioactive substances, viz.: uranium, polonium and radium. At present it is impossible to say where this revolution in ideas is going to carry us; it would be folly to predict with our present data. Radium, polonium and uranium exist in such infinitesimal quantities, as far as we know, that it is impossible to judge what they will do for chemistry and medicine. At the moment the outlook is very hopeful and it would seem as if we were on the verge of some very vital discoveries.

Fortunately now, however, the profession has accumulated in the past eight years, sufficient data on the subject of the X-ray and the Finsen light to speak with some assurance. The use of concentrated actinic rays of light, as seen in both the Finsen light and the Roentgen ray, has been accepted in therapeutics.

The X- ray began its career as a scientific toy and was used indiscriminately by all classes of experimenters. The medical profession was not long in learning that it had a distinct therapeutic effect upon the human organism, and hence its use must be guarded carefully. The reports in the daily papers of injuries done by the X-rays have produced more or less of a reaction in the mind of the public, but this fact should not militate against its use in properly selected cases by trained observers. The theory and technique of Roentgen ray treatment has progressed very rapidly in the past five years, and will undoubtedly make still greater advances.

In a symposium held recently by the Philadelphia County Medical Society every phase of work along this line was treated. It seemed the concensus of opinion that in operable cases of carcinoma that the X-rays should not be used until the surgeon has done his work, while, of course, inoperable cases should always be given a trial with the X-rays, for even hopeless cases have sometimes yielded to this form of treatment. A few simple rules were laid down by Pfahler for guidance in these cases. This observer is convinced that the X-rays are of undoubted value in the treatment of certain cases of both superficial and deep-seated carcinoma and tuberculosis; that daily treatments carefully and properly given will produce the best results; that a dermatitis should never be produced, a simple erythema being the limit. Pfahler also calls attention to the fact that there are idiosyncrasies in certain people which render them most susceptible to the X-rays, and to these people in spite of the most careful treatment, deeper burns will occur. He has found that tuberculosis, whether of the skin or of the glands, will yield in certain cases to the effects of the X-rays, but that epithelioma, involving mucous membranes, should be removed as soon as possible by the knife, following this by X-ray treatment.

In the treatment of the diseases of the skin the Finsen light and the X-ray have been used to a considerable extent. The Finsen light has the disadvantage that every treatment produces a dermatitis, and can be applied only to a very circumscribed area; on the other hand, this light does not harm the tissues for the inflammatory phenomena disappears within ten days, when it is possible to estimate the improvement. It is not possible to control the action and effect of the X-rays so well, although they can be applied to much larger surfaces. Schamberg reports in this symposium the results of the records of over one

hundred X-ray patients, treated for such diseases as acne, eczema, epithelioma, psoriasis, or sarcoma, lupus vulgaris, keloid, sycosis, vitiligo, etc. In acne, he is in accord with the opinion expressed by other dermatologists that no remedy approaches the efficacy of the X-ray treatment of this dermatosis; old acne lesions disappear and the results are often brilliant; rebellious and long standing cases yield to treatment in a short time, and as a rule, they stay cured. While the report in eczema is not as encouraging, still the X-rays seem to stimulate the normal structures of the skin to healthier activity, while the treatment is also of service in many other cutaneous diseases.

American observers have not been as successful in the use of the Finsen light as their European colleagues. Quite recently Finsen himself has published an article in which he claims that these unsatisfactory results are due either to the fact that improper apparatus is used, or else his instructions have not been followed, consequently we shall not comment at present upon his work beyond saying that in Europe it stands very high, and is constantly being introduced into new centers of medical activity.

THE PUBLICATION OF SOCIETY PROCEEDINGS.

THE provision of definite mediums for the publication of papers presented to societies has a considerable bearing on the problems discussed in our last issue. Let us take a concrete example. A physician reads a paper before a certain society, organized on the delegation plan, so that the average attendance of about 100 represents a potential constituency of about 2,500. He is required to publish either the original paper or a reasonably full abstract in a certain journal, of excellent standing but almost entirely local in its scope. Reprinted "Proceedings" are sent to those who have and who should have heard the paper and the ordinary circulation of the journal reaches a few hundred more. It is some gratification of vanity to have a paper printed, but if the paper represents the right kind of study and experience, it ought to be published, and so narrow a range of circulation does not constitute true publication. The natural temptation is to send an abstract to the required journal and to offer the original paper for publication in some journal of wide circulation. Under the circumstances, there should be no objection to such a procedure yet, the editor of the local journal will naturally feel slighted, the editor of the national journal can scarcely make a rule that will apply to such cases without making a loop hole that will admit the republication of papers already sufficiently placed before the reading medical public and, if all the readers of papers at such a society follow this precedent, the "Proceedings" become a farce.

Several state and similar large societies publish, annually, at considerable expense, quite elaborate, bound volumes of proceedings. These books reach comparatively few beyond the hearers of the papers, the matter contained is incapable of proper classification, and it is not indexed except by annual tables of contents, sometimes not even by these. Medical journals find it impracticable to review or abstract such a heterogeneous mass of literature and the material presented is practically buried, so far as the medical public is concerned. Whenever we receive such a volume, we ask ourselves, Is the game worth the shot? It is not simply a matter of personal vanity or ambition, to desire that a medical article should be published and so published as to reach the profession generally. The post-graduate training of the profession depends mainly on this means of education and it is not merely a privilege but a duty to give as well as to receive information. Every paper which is worthy a hearing ought to be published, unless it deals with some peculiarly local topic or is merely a rudimentary compilation for the information of those who, for some reason, have failed to receive the usual medical education. Indeed, the publication of a paper is, in general, far more important than its reading before a limited audience.

Under present conditions, there is only one American medical society of sufficient size to allow a proper grouping of papers and so organized as to control an organ of adequate circulation—the American Medical Association. Some of the eastern cities have societies which have secured publication in journals of wide circulation, but the proceedings, as a rule, cover so wide a range that it would be better to leave the individual papers to editorial arrangement and to publish some in surgical journals, others in those devoted to pædiatrics, others in various special or general journals. Societies of specialists even, often cover a considerable variety of topics in a brief section and it is difficult for them to secure satisfactory organs of publication, without incurring considerable expense. All things considered, we believe that Society Proceedings should be reduced to minutes and very brief abstracts of papers, intended rather as an index of work performed than as a perpetuation of such work and that the individual author should be allowed the fullest liberty to secure publication of his papers wherever he may elect. This plan would also enable editors to select material best adapted to their readers, to arrange symposiums and to avoid repetition of essentially similar discussions, at too short intervals.

RADIUM AND THE TRANSMUTATION HYPOTHESIS.

TWO theories in explanation of the radio-active properties of that wonderful substance, radium, have recently been propounded. One of them, that of Prof. Mendola, is that radium is a compound of helium formed in prehistoric ages, from which, by slow spontaneous decomposition, is derived the energy for maintaining its characteristic radio-active properties. This theory has failed to co-ordinate all the observed phenomena, and hence the alternative hypothesis, put forward by Professor Rutherford and Mr. Soddy, and supported by the powerful authority of Sir Oliver Lodge, appears likely to prevail. These and other physicists believe that in the marvelous phenomena exhibited by radium we are watching the true transmutation of an element. Prof. Mendola's supposition is founded on the idea of a gradual disintegration, but some of the manifestations accompanying the emission of the "rays" are quite unknown in connection with any chemical change whatever, and seem to point to some process of an entirely different na-

ture. If radio-activity were due to the decomposition of a helium compound, the rate of such decomposition would of course depend on the nature of the combined substance, and also on the temperature. In fact, however, the energy associated with radio-activity is almost incomparably greater than that involved in any purely chemical action yet discovered. All the evidence seems to show that in radio-active change the store of internal energy of the atoms themselves and not the result of their mutual interaction, is brought into play. Helium may thus be regarded as the direct product of atomic disintegration. As the London "Times" remarks, this transmutation hypothesis is not conclusively proved. But it is not so entirely unexpected as might be supposed, and in the present state of our knowledge it explains and co-ordinates the facts better than any other view hitherto advanced. The possibilities it suggests of the continual evolution and disintegration of matter are of general interest. The theory may certainly be used as a working hypothesis, while, should it stand the rigorous test of time, we may feel confident that we are seeing the partial fulfilment of the dreams of the medieval alchemist, though we have not yet discovered the philosopher's stone which would enable us to transmute at will elements which usually exist in undisturbed equilibrium.

STOKES-ADAMS DISEASE.

THE condition which has received the above name, is really, it appears, to be regarded as a syndrome or combination of symptoms, rather than a separate clinical entity. Dr. William Osler, in a recent number of the "Lancet," gives a comprehensive, yet concise, account of the affection. He describes it as characterized by a profound disturbance of the automatic mechanism of the heart; nervous symptoms frequently resembling severe organic disease, and secondary symptoms, such as Cheyne-Stokes breathing, cardiac asthma, and vasomotor accompaniments of heart-shock. "The clinical picture is very variable—there are acute, rapidly fatal cases, chronic cases in which for years the patient has a slow pulse with syncopal or pseudo apoplectic attacks, and forms in which slight but well characterized attacks occur at intervals in persons apparently well." The nervous symptoms, it is evident, are such as might readily lead to serious mistakes in diagnosis, as in an instance given by Dr. Osler, where he had no doubt the patient labored under genuine apoplexy, while in reality the case was one of syncope, and comparatively trifling. Epileptiform seizures without apparent cause, such as are sometimes met with in elderly men, are possibly capable of explanation if the symptom-complex in question is borne in mind. The combination of a slow pulse with one or another of the nervous symptoms alluded to, should at least lead to a suspicion of this Stokes-Adams syndrome as one closely allied to it.

The whole number of cases reported is as yet small. Those cited and analyzed by Dr. Osler are twelve in number. Many of them were accompanied by arteriosclerosis, but the precise pathological alterations producing the condition are as yet unrecognized. The prognosis is always bad. Treatment with potassium—iodide, nitrates, atropine, regime, posturing with an oncoming attack, and inhalation of oxygen have all been found of service.

PATENT MEDICINES IN GERMANY.

ACCORDING to the "Vossische Zeitung," the Federal Council of Germany has agreed upon a set of minimum regulations for the sale of secret remedies (proprietary or so-called patent medicines) and will request the confederated governments to have them go into effect on January 1st, 1904, except in those States having already more stringent regulations, where the latter will remain in force. The Council has classified the preparations dealt with in two lists, the reason for which distinction is not apparent. They comprehend in all 95 remedies, and these may be added to by the council.

The regulations prescribe that the vessels and wrappers in which the listed remedies are sold must contain the name of the remedy and that of the manufacturer; also the name of the firm where the same is sold, and the price. These rules do not apply to the wholesale trade.

It is prohibited to have testimonials, advertisements, etc., appear upon the vessels or the wrappers, or to hand such matter to the purchaser separately, or in any other manner.

The druggist is obliged to ascertain to what extent the rules relative to the sale of drastic remedies apply to the article sold.

Any nostrum contained in the lists, about which the druggist cannot ascertain whether its composition is such as to permit the sale without a physician's prescription, can only be sold upon a written prescription, dated and signed by a physician, dentist, or veterinary surgeon; in the latter case, however, only if the remedy is intended for animals. A repetition of the sale requires a new prescription. Remedies of this class must bear the inscription on the vessels or the wrappers: "To dispense on physician's prescription only."

Included in the lists (and having little reason to be proud of their teutonic company) we notice Warner's Safe Remedies, Ayer's Sarsaparilla, and some other American medicines—so-called. Under the new decree, none of them will be lawfully obtainable without medical authority.

SPURIOUS PREGNANCY.

AS Haultain has truly said, one cannot agree with Pajot and Charpentier when they say "'there is no such thing as spurious pregnancy." It has been proved beyond the shadow of a doubt that cases have simulated pregnancy without being the actual condition. No other state, either physiological or pathological, could be mistaken for it on subjective examination; therefore, it appears strange and worthy of comment that two so well known and eminent authorities should make such a misstatement. Granted that there is such a condition. Many explanations have been given, such as wind in the womb, flatulent distention of the intestines, and excess of fat in the omentum. Any of these, however, must be considered to be far short of the whole truth when we know that, in the great majority of cases, complete anaesthesia

entirely dissipates the abdominal tumor. Evidently, then, the abdominal distention is in many cases entirely due to muscular contraction of a more or less complex nature. The muscles chiefly are the recti, obliques, and transversalis abdominis. These, if contracted, will give a decided prominence to the abdomen.

Having such cases on record Haultain determined to try the result of an electric current through the muscles of the abdomen, when they were flaccid during anesthesia. The result passed expectation—a faradic current through the abdominal muscles causing the most marked prominence of the abdomen in a manner quite analogous to the condition before anæsthesia. A similar purely muscular distention of the abdomen has been frequently felt during and after the third stage of labor which rendered a grasp of the uterus difficult to obtain. As a result of this distention of the abdomen the intra-abdominal pressure will naturally be much diminished, and thus allow of much flatulent distention of the intestines—a condition which, being naturally generally associated with the prominent abdomen has been frequently looked upon as the cause instead of the effect. On looking over the published cases it will be noticed that the great majority of examples have been furnished by women at the menopause, while the others have been associated with disease of the generative organs or vitiated mentally.

The essential cause, therefore, is primarily purely nervous, but we can go still further, and subdivide it into two varieties, "mental" and "reflex." The former is generally exemplified by the wish being father to the thought—women at the change of life clinging closely to the cherished ideal of their sex, and relinquishing it with reluctance. But again, it is occasionally due to fear, the result of some illicit intimacy. But it is frequently quite independent of purely mental origin; when the abnormal condition is entirely of a reflex origin, leaving little to the imagination, when one considers the intimate nervous relations which exist between the uterus and abdominal muscles in the lumbar plexus. To account for the cause of the other signs of pregnancy in any more lucid manner than by generally attributing them to nervous influences is hopeless; the details are a mystery. But if, as is well known, sudden nervous impressions are sufficient to inhibit the secretion of milk, there seems no reason why other nervous impressions may not react in an opposite process.

An example in the lower animals under Haultain's observation illustrates, in a marked manner, the influence of will in promoting the lacteal secretion. A "Dandie Dinmont" bitch had borne pups three times, the last litter five years ago; since that time, however, she has successfully nursed three litters of Highland terrier puppies, which she appropriated at the earliest opportunity after severe conflicts with the real mother, a weaker dog .

The subject as a whole, though highly interesting and curious from a scientific point of view, demands from a practical standpoint special attention. No more damaging error of diagnosis can be made than that regarding pregnancy, and none more certain to be revealed, and proclaimed from the housetops. Therefore these cases, though scant, must be of value in teaching how necessary it is to refrain from assenting to a diagnosis of pregnancy, without having satisfied ourselves of at least one absolute sign.

THE MEDICAL EXPERT.

THIS term has grown into a narrow meaning nowadays, being restricted in common parlance to the medical expert who testifies in the courts of law. Lawyers in their zeal to win cases have brought their medical brethren into disrepute. The medical expert is rarely called to exhibit the whole truth, but simply the phase that the engaging lawyer desires. Facts are suppressed or distorted, rare medical cases, that are simply curiosities, are cited as if their occurrence was the rule and so on. The average lawyer is simply concerned in presenting his own case as fully as possible and with throwing doubt or discredit on medical testimony of the opposing side. In a recent case in Philadelphia where a woman was on trial for the alleged poisoning of her children, the prosecution and the defense were able to produce experts who swore to diametrically opposite opinions and theories. In any large city there are medical men holding all shades of opinion, and the shrewd lawyer can pick his medical experts with the nicety of a gardener gathering flowers of certain hues. As a result the trial judge advised the jury to ignore as far as possible the testimony of the experts and depend on their own common sense. Such trials throw discredit on the medical expert, besides becoming a source of burden to both plaintiff and defendant. In the case alluded to, it was estimated that the defense spent twenty thousand dollars, supplied by the insurance companies, to break down the commonwealth's experts. It was a victory for the defense, because that was the object, to destroy confidence in the report of chemist and pathologist, who had charge of the viscera of the dead children.

The medical expert has other trials peculiarly his own. If he uses the ordinary technical language of his profession, he is misunderstood and occasionally criticized; if he uses coloquial terms, his explanations are loose and ill fitting. Again the friendly lawyer is often very ignorant of medicine and slow to learn. There has been reported a case of senile gangrene which was before the court, in which the lawyer was completely thrown off his equilibrium by a medical expert of the opposing side. The lawyer had asked for the symptoms of gangrene, meaning of course the senile variety, and the expert purposely described "traumatic" gangrene. The lawyer had known the difference, but for the moment forgot, and his cross-examination was completely spoiled, practically losing the case on this one issue.

A physician in the eyes of the law is not an expert, unless he is called upon to express his opinion from a study of the case. If simply called upon to testify to such facts as that he had attended such and such a patient, etc., he is simply an ordinary witness.

It is a foolish thing for a physician to attempt to be "smart" or humorous on the stand. One medical man with international reputation destroys the value of his testimony by criticizing and quibbling with the opposing lawyer; as a result his testimony which is clear enough in itself loses all its force to the judge and jury from his unfortunate behavior. No place in the world demands courtesy, tact and gentlemanliness more than the witness stand. With this shield, no counsel can unduly upset the medical man. Re-

member the man who asks the questions has tremendous advantage and do your duty gently, firmly and clearly, ignoring any slurs or traps.

Lawyers as a rule claim that no change can be made in our present system of expert testimony. If a number of experts are appointed by the court, they must neglect their professional work and would shortly fall behind their colleagues. Moreover the constant round of testifying soon produces hardened witnesses, who would not satisfy those seeking justice.

The physician should forget which side he is on and be simply the servant of truth, not distorting facts or suppressing them. It pays, judged simply from the lower standard of expediency. The unscrupulous expert has a short career; he is despised even by the lawyer who employs him, while the honest man gathers force as he grows older.

THE PHYSICIAN IN THE TREATMENT OF SEXUAL CONDITIONS.

GENEREAL diseases form a subject which should be approached by an author, as the sunshine falls upon a mass of refuse, fearlessly, but with candor and truth. The physician should devote proper study to the physiology of the male sexual organs, not merely in their narrower functions, but in their broader relationship to the general economy, to the product of conception, and, both to their activities and anatomical details, to the not dissimilar organs of the other sex.

He must attest to the incontrovertible fact that the generative apparatus of the male, even after fifty years of complete disuse, may be capable of procreation, as also the equally established fact that it may accomplish the same end after a similar lapse of time, even following the most persistent abuse. The wonderfully planned conservation of its power under the jealous protectorate of the recuperative energy of the body, in both health and disease, in precocious development and tardy decline, should be well understood by the surgeon who resorts to a therapeutic measure or a surgical mutilation. With this it should be demonstrated clearly that the procreative is far from holding the pre-eminent place among the powers of the body, being often preserved in the fullest measure by the tuberculous, the syphilitic, and the idiotic; that it is often most successfully active in those periods of human life when the best powers of a man are actually immature; and that it may be wholly wanting, or but very feebly developed, in individuals who physically represent the grandest and noblest types of the sex.

The physician should be able to prove that the words "potent" and "impotent," in the sense of their common usage, have no meaning whatever for the expert, and express chiefly the erroneous concepts of those who employ them, the majority of healthy men being both potent and impotent in this false sense. The average man will be "potent" or impotent," according as a thousand factors may operate in one direction or the other. The human, like other animal brutes, may, indeed, at all times be competent to rape at will, but that the "civilized" man, even when governed by immoderate lust, and possessed of unusual vigor, is often "impotent" in conditions of health. There is a prostatic no less than a uterine "flood and ebb," in each month, of sexual congestion and its reverse. The physician must remember that as women are distinguished from the females of all other animals through generations of transmitted inheritance, by a menstruation which may be described as the price of virginity, so the "spermatorrhœa" of the male may be a condition of his clean living; and he is in no danger, necessarily, of that "pathological" state.

There is that far more interesting field where accurately localized organic changes in the sexual tract are responsible for such results, the changes themselves being, however, as a rule, of far more consequence in many ways than in relation merely to the minor consequence of "impotence" or "sterility." Tuberculosis of these organs, for example, is of growing importance, our knowledge of it increasing with every month, under the impulse of the painstaking efforts of indefatigable research. It probably, even when most insidious of evolution, first attacks the prostate gland, and many of the poorly described diseases of the prostate in persons of virgin or venereal antecedents are instances of its interference with the function of that organ. No attention, as a rule, is given to its influence in discussing the etiology of spermatorrhœa (the word "tuberculosis" does not appear in the index), of many works, though there are few experts who have not examined cases of genuine spermatorrhœa, where semen was regularly at certain hours of the day discharged with the urine, and where the whole mischief originated in a tuberculosis of the gland in question. In this same field of organic changes, again, one seeks to know more of the abnormal condition, known as "bloody semen" than can be compressed into the scanty paragraphs here devoted to the subject. One would like to know how to differentiate the bloody semen of prostatic origin from the more obstinate form due to blennorrhagic involvement of the seminal vesicles, and even to understand how to discover which vesicle is at fault, as well as to be fully instructed that even in the most obstinate cases this condition can be made to yield to that wherein a child may be procreated by the subject of the disease.

BIBLIOGRAPHICAL

Infectious Diseases. Their Etiology, Diagnosis and Treatment. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris, etc., translated by M. S. Gabriel, M. D., New York. In one octavo volume, of 864 pages, with 43 illustrations. Cloth, $5.75, net. Lea Brothers & Co., Philadelphia and New York, 1903.

A volume which comprehends almost the entire scope of internal medicine and touches upon many of the principles underlying modern surgery as well, should be welcome. It could not have been prepared by a laboratory investigator however brilliant, nor by a mere clinician; its creation remained for one who combines the instincts and training of both, and is a master of his art.

Never losing sight of the fact that the purpose of the laboratory is to amplify and explain clinical observations, Professor Roger has pursued clinical and experimental researches side by side. In this work

he unfolds the knowledge of his subject by simple and practical methods. He first studies the pathogenic agents, inquires into their distribution in nature, the conditions under which they attack man and their modes of invasion. Full consideration is then given to their influence upon the human economy and the reaction of the latter upon the invaders. Suitable time and space are devoted to questions of diagnosis and prognosis and that the work is eminently practical is shown by the fact that so much space is devoted to Treatment, both preventive and curative. This part of the work is especially interesting and helpful.

The author has had opportunities for the study of infectious diseases which rarely fall to the lot of a single individual. In the hospitals under his charge are received all cases of contagious diseases which occur in Paris and he has personally attended more than 10,000 patients during a period of five years. The effect and purpose of this work is to harmonize any seeming antagonism between experimental researches and clinical observation and to reduce the theories of infection and immunity to a basis of practical utility. The book is worthy a place in any library.

A Compend of Pathology, General and Special: A Student's Manual in One Volume. By Alfred Edward Thayer, M. D., Professor of Pathology, University of Texas. Second edition, containing 131 illustrations. Philadelphia: P. Blakiston's Son & Co. 1903. Pp. 711; 12mo.

This Compend was formerly issued in two volumes, but now appears in one, with a chapter on the nervous system and several illustrations added. The text has been thoroughly revised, is concise, practical and reads easily. The student will find it of service in his work, and even the general practitioner can use it to advantage as a ready hand-book for many purposes, where larger works are not required.

Progressive Medicine. A quarterly digest of advances, discoveries and improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia, etc., etc. Assisted by H. R. M. Landis, M. D., etc. Vol. IV. December, 1903. Lea Brothers & Co.: Philadelphia and New York.

In this volume we find a most interesting and instructive article on "Recent Advances Concerning the Physiology of the Stomach," based upon Pawlow's researches. There are also articles covering the whole digestive tract and allied organs. In the section devoted to Surgery, shock is discussed, including the work of Dr. Crile on the application of the rubber suit to increase blood pressure, which is considered of great practical value. There is also an interesting account of the use of adrenalin chloride (P. D. & Co.), in connection with the blood pressure.

The book is replete with practical up to date articles, on diseases of the kidneys, the genito-urinary organs, etc., and closes with "Practical Therapeutic Referendum," of great value.

Blood-Pressure in Surgery; An Experimental and Clinical Research. The Cartwright Prize Essay for 1903. By George W. Crile, A. M., M. D., Professor of Clinical Surgery, Western Reserve Medical College; Visiting Surgeon to St. Alexis Hospital; Associate Surgeon to Lakeside Hospital, Cleveland, Ohio. Philadelphia and London: J. B. Lippincott Company. 1903. Octavo; pp. 422.

The diversity of opinion in regard to the maintenance of the blood-pressure in surgical cases, and the importance of the subject to humanity, makes such a work as this, based upon practical scientific data, of the greatest importance. It is interesting to study the comparative results of heavy stimulation with drugs in surgical shock, with those in which no stimulating agent was employed, and note the result. It shows how easy it is to be mistaken, and what creatures of fashion, habit, and tradition we may become, even in our science and art. There are many questions which naturally arise in so great a subject, and it was to help in their solution which prompted the research which is the foundation of this volume. The full data of the experiments has been published for the benefit of future investigators. The author says he can verify all his statements by tracings in his possession.

The work seems to have been done under the most careful scientific precautions, and leads us into a new field of research.

In our November issue, 1903, p. 338, our readers will find a description of Dr. Crile's brilliant work, which is worth reading. The new treatment consists of pressure applied to the whole surface of the body by clothing the patient in an air-tight suit, which is then inflated, causing a movement of the blood in the distended veins back toward the heart, just as would be the case in restoration of the normal vascular tone. This method seems to mark a new era in the treatment of a class of most intractable cases, and every surgeon at least, will desire a copy of this book describing so important a process. Progressive Medicine for December, 1903, p. 85, has a good commentary on Dr. Crile's method, which should be read.

Compend of Diseases of the Ear, Nose and Throat. By John Johnson Kyle, B. S., M. D., Lecturer on Otology, Rhinology and Laryngology in the Medical College of Indiana, etc., etc., with 85 illustrations. Philadelphia: P. Blakiston's Son & Co. 1903. Pp. 280. Price, 80 cents.

This little book, intended for the student and the general practitioner, will be found of great service for the purpose intended. The subject has been epitomized briefly and covers the best up to date literature. It will help to keep the reader abreast the times.

Stengel's Pathology. Fourth edition.

In our Nov., 1903, issue, p. 344, will be found a review of this excellent and most useful work, but we failed to state that this is the fourth edition, which is important, in view of the fact that the text has been thoroughly revised and much of it practically rewritten. There are also many new illustrations, some of which are superb works of art. . A text-book of Pathology from so distinguished a teacher as Prof. Stengel, of the University of Pennsylvania, cannot fail to attract attention. The house of W. B. Saunders & Co. may well feel proud of the physical part, which is in the highest art of the bookmaker.

The Medical Record Visiting List, or Physicians Diary for 1904. New revised edition. New York: William Wood & Company.

This long established, useful little book comes to us in greatly improved condition by the addition of matter of service in emergencies, and in the list of remedies and their maximum doses. Otherwise the

contents stand as usual. Send for sample page.

The Physicians' Visiting List for 1904. Fifty-third year of its publication. Philadelphia: P. Blakiston's Son & Co. Price $1.

This book is well and favorably known and there can be no doubt of its usefulness. It contains valuable information for emergencies. Send for sample page.

Psycho-Therapy in the Practice of Medicine and Surgery. By Sheldon Leavitt, M. D. Octavo; pp. 247. Chicago: Garner-Taylor Press. 1903.

Phycho-Therapy, or more properly, Therapeia, is an attractive subject to the modern physician, and we looked forward to a rare treat in perusing this volume, as we expected to find the subject treated from the standpoint of the psycho-physiologist and physician, conformably to Tuke, rather than to that of a layman, such as the excellent volume of the late Mr. Hudson on "The Law of Psychic Phenomena." Mr. Hudson brought to his task excellent qualities of mind and heart, and he lacked only the training of a physician to have produced an invaluable book on his favorite topic.

Dr. Leavitt, while his book is not devoid of interest, is even more lacking in qualifications for his task than was the learned and felicitous Hudson, for Hudson possessed literary tact and coherency, and was always lucid and readable, which is more than can be justly said of our esteemed colleague.

We insist that no one is qualified to write on the subject of Therapeutics, psycho, or other, without a knowledge of the essential nature of disease. The author seems to be grossly lacking in this respect. It will be news to most philosophic observers that "The opinion long held, and often set forth in precise terms by those whose intuitions were allowed to anticipate their reason, that the essential etiology of disease lies in the psychic realm, is being accepted by scientific observers," p. 27. And again:

"There is not now a shadow of doubt that the origin of disease is in perverted mental concepts, logical enough in form, but built on wrong premises. These pernicious thoughts, however, are not necessarily of the conscious type." p. 27.

We are by no means wedded to old ideas and formulas of thought, but our belief, with the philosophic thought of the ages, in the existence of morbilli as the chief factor in disease, is still intact. The author having accepted the visionary hypotheses of Mrs. Mary Baker Eddy as to the psychic nature of the causes of disease, the reader will be prepared for his therapeutics. This is mental, of course. While he would not do away altogether with the homeopathic materia medica, he would make use of medicaments for their effect on the imagination, chiefly as suggestive. Minor surgical operations he would practice and advise for the same purpose. This is a return to imposture medicine.

We cannot follow the author through all the vague meanderings of his book, his views of "healing" and "healers," by thoughts at short range and long; his vague ideas of matter and mind, the conscious and the sub-conscious, the "liminal" and the supra-liminal," etc., etc. It will suffice to say that the student of psychological medicine will find little in his pages of practical utility. The apothegms, which are freely interspersed through the pages of the book are its most interesting feature. Perhaps they are worth the price of the volume, though many of these are misleading, apart from their context.—D.A.G.

Manual of Medicine. By Thomas Kirkpatrick Monro, M. A., M. D. Fellow of, and Examiner to, the Faculty of Physicians and Surgeons,, Glasgow, Physician to Glasgow Royal Infirmary, and Professor of Medicine in St. Mungo's College, etc. Philadelphia and New York: W. B. Saunders & Company. 1903. Pp. 901; octavo.

This work, while primarily intended for students, will be found of service to the practitioner as well. The book stands between those that are too small for the modern student, and those that are too large for the average student, even to attempt to master. The text is classically written by a master hand, in concise, practical, understandable language, and cannot fail to be appreciated.

Diseases of the Urinary Organs, including Diabetes Mellitus and Insipidus. By Clifford Mitchell, A.B., M. D., Professor of Renal Diseases in the Chicago Homeopathic Medical College. Urologist to the Chicago Laboratory for Clinical Diagnosis. Illustrated. 716 pages, octavo. Linen, $4.00, net. Postage, 30 cents. Philadelphia: Boericke & Tafel. 1903.

This book is written for the general practitioner and for that purpose it has been made thoroughly practical and up to date, special prominence being given to the diagnosis and treatment of diseases of the kidneys, ureters, bladder, prostate and urethra, together with diabetes mellitus and insipidus. Modern surgery is given the consideration it deserves in connection with the treatment, and much attention is given to diet, climate and hygiene. The book is written on broad lines, as it should be, and will surely be found useful by those who require such help.

Illinois State Board of Health. Report on Medical Education and Official Register of legally qualified physicians. 1903.

Contains a vast amount of practical information.

Clinical Treatise on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden, Physician in Chief to the City Hospital, Frankfort, A. M. Authorized American edition translated under the direction of Boardman Reed, M. D. Part IV. The Acid Anti-intoxications. Small 8vo. New York: E. B. Treat & Company. 1903. Price 50 cents.

We are glad to welcome another of this series of fascinating monographs on subjects of such vital importance to the practitioner of internal medicine. The present volume covers a field which has been hitherto very slightly explored, and we are glad to testify to the value of von Noorden's researches in this direction. Our readers should not fail to possess the whole series.

Mammalian Anatomy, with special reference to the Cat. By Alvin Davison, Ph. D. Ex-Fellow of Princeton University; Professor of Biology in Lafayette College. With over one hundred illustrations, made by W. H. Reese, A. M., from the author's dissections. Philadelphia: P. Blakiston's Son & Co. 1903. 12mo.; pp. 250. Price $1.50.

As a careful study of the anatomy of the cat, familiarizes one with the anatomy of the human body, the best medical schools advise prospective students to dissect this animal as preparatory to human anatomy. This little book will be found of great service to those who wish to follow such a course. The book will bear careful inspection. The text is well written

and the plates all that can be desired. We cordially commend the book.

Modern Surgery: General and Operative. By John Chalmers DaCosta, M. D., Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia. Handsome octavo volume of 1099 pages, with over 700 illustrations, some in colors. Philadelphia, New York, London: W. B. Saunders & Company. 1903. Cloth, $5.00, net; sheep or half morocco, $6.00, net.

This work is so well known that we need only state that it presents in a concise form the fundamental principles and the accepted methods of modern surgery. Obsolete and unessential methods have been excluded in favor of the living and the essential. The author's extensive experience as a teacher is evident throughout the entire work, the statements being clear and to the point.

The progress of surgery in every department is one of the most notable phenomena of the present day. So many improvements, discoveries, and observations have been made since the appearance of the last edition of this work that the author found it necessary to rewrite it entirely. In this fourth edition the book shows evidences of a thorough and careful revision, and there has been added much new matter. There have also been added over two hundred excellent and practical illustrations, greatly increasing the value of the work. Because of the great amount of new matter it has been deemed advisable in this present edition to adopt a larger type page, which is a great improvement, rendering, as it does, the work less cumbersome. The book will be found to express the latest advances in the art and science of surgery, and as such we commend it.

The Worth of Words. By Dr. Raley Husted Bell. With Introduction by Dr. William Colby Cooper. Cloth, pp. 352; gilt top. Price $1.25. Hinds & Noble, New York.

This book should be in every public and private library, in every school room and every college. For teachers and writers and those who have the least ambition to excel, it is invaluable. It points out many errors in diction which are common to writers and speakers.

A Manual of the Practice of Medicine. By A. A. Stevens, A. M., M. D., Professor of Pathology in the Woman's Medical College of Pennsylvania; Lecturer on Physical Diagnosis in the University of Pennsylvania; Physician to the Episcopal Hospital and to St. Agnes' Hospital; Fellow of the College of Physicians of Philadelphia, etc. Sixth edition, thoroughly revised, enlarged, and reset. Handsome post-octavo of 556 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Company. 1903. Flexible leather, $2.25 net.

The popularity of this manual on the Practice of Medicine is attested by its numerous editions. The work covers completely the ground gone over by the student, especial stress being laid on diagnosis, differential diagnosis, and treatment. Each disease is treated in a concise, clear, and scientific manner, and the reader cannot fail to grasp the author's meaning. Many articles, notably those of Diseases of the Digestive System, Diseases of the Myocardium, Malaria, Diseases of the Blood, Gout, Diseases of the Spinal Cord and Larynx, have been entirely rewritten, thus bringing the work absolutely abreast the times. The student will find it a useful book, and the general practitioner a handy guide.

—The Four Epochs of Woman's Life.. Maidenhood, Marriage, Maternity, Menopause. By Anna M. Galbraith, M. D., author of "Hygiene and Physical Culture for Women;" Fellow of the New York Academy of Medicine, etc. With an Introductory note by John H. Musser, M. D., Professor of Clinical Medicine, University of Pennsylvania. 12mo. volume of 247 pages. Philadelphia, New York, London: W. B. Saunders & Company. 1903. Cloth, $1.50, net.

This work, written for the instruction of the laity on subjects of which every woman should have a thorough knowledge, is indeed a timely and excellent one. The fact that a second edition has been demanded in such a short time is sufficient proof that women have at last awakened to a sense of the penalties they have paid for their ignorance of those laws of nature which govern the epochs of their lives. The language used is clear and comprehensive, yet, withal, modest, and the meaning easily grasped even by those unfamiliar with medical subjects. As a further aid a comprehensive glossary of medical terms has been appended.

In this new edition the author has made some excellent additions, viz.: A section on "The Hygiene of Puberty;" one on "Hemorrhage at the Menopause a Significent Symptom of Cancer;" and one on "The Hygiene of the Menopause." These sections make the work the very best on the subject we have seen, and physicians will be doing a real service by recommending it to their patients.

The Distribution of Blood-Vessels in the Labyrinth of the Ear of Sus Scrofa Domesticus. By George E. Shambaugh, Instructor in the Anatomy of the Ear, Nose, and Throat, The University of Chicago, founded by John D. Rockefeller, Chicago: The University Press. 1903. Price, $1.25. 12mo. Pp. 20; and eight plates.

This interesting little book represents a vast amount of original research and contains some beautifully artistic plates, illustrating the subject of the text.

Syllabus of Lectures on Physiology. By William H. Bigler, A. M., M. D., Professor of Physiology and Pediatrics, Hahnemann Medical College, Philadelphia, Pa. Second edition. Revised and enlarged. 205 pages, flexible. Interleaved, $1.50; postage, 10 cents. Not interleaved, $1.25; postage, 7 cents. Philadelphia: Boericke & Tafel. 1903.

This little book contains the essentials of physiology in a practical form for the under-graduate or for the practitioner who desires a concise review of the subject.

A Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A. B., M. D., formerly Professor of Physiology in the Memphis Hospital Medical College. Chicago: Rowe Publishing Company. 1903. Pp. 217. 12mo. Illustrated.

The author has endeavored to give a plain, practical and concise summary of the methods and results of the non-surgical treatment of diseases of the prostate gland and their sequelæ, as demonstrated by a long clinical experience. The book is well worthy of perusal, as it abounds in originality and personal experiences of a helpful character. The use of drugs

and of electricity are the agents chiefly relied upon, of course.

Freezing of Milk.—Bischoff (Archiv f. Hygiene, Bd. 47, 1903) examined milk put up in patent bottles which had been kept frozen from several days to three months. The results showed that milk kept at a moderately cold temperature is preserved for only a few days. The growth of bacteria is retarded. If the milk is frozen its stability is greatly increased, but is dependent on its rapidity of cooling. By continued freezing a number of flocculi form in the milk, which however, are redissolved by heat; after three months' freezing they are insoluble. It was found that small quantities of frozen milk will remain sterile for a longer time than larger quantities so treated.

CORRESPONDENCE

THE VALUE OF THE CHARTER OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK.

We have already expressed the conviction that the proposed reunion of the medical profession of New York must be based upon the retention of the existence and charter of the old Society. So far as such a prophesy was concerned, it was sufficient to point out the deeply rooted sentiment of the members of the Society against committing corporate suicide after nearly a century of active existence and without signs of senility. There are too few things of any kind in the United States which approximate or exceed the age of one hundred, that we can afford to lose any, unless on account of decay. But this argument, after all, is a sentimental one and we are a hard-headed profession among a pragmatic people. What practical value has the ancient establishment of the Medical Society of the State of New York?

First of all it must be conceded that the Society possesses no power of infringing on the rights of other physicians and we may add, no desire to do so. Even in this age of liberty and enlightenment, the man who departs notably from accepted ideas and who has but few companions is liable to treatment which he may construe as persecution. While the Society undoubtedly consists of men human enough to desire the control of the physicians of the State according to their own ideas, it stands pledged to the fair treatment of others than its own members, by virtue of its voluntary cooperation with and recognition of the analogously constituted Homœpathic and Eclectic societies. At the same time, its charter is a powerful weapon in the hands of a united profession —or let us say school—against unorganized, individual practitioners who are commonly considered a menace both to the existence of a proper professional esprit de corps and to the welfare of the community at large.

The charter of the Society and the precedents already established leave the way open to a simple and natural treatment of the problem of sectarianism. Or, rather, they have brought about a condition in which sectarianism can scarcely be considered a problem. In reality, we have only one special school of medicine to consider—the Homœpathic. Personally, we would like to see all physicians united in a common profession but with absolute individual liberty as to belief and practice, yet we recognize two practical obstacles to such a condition: (1) that the medical body considered as a whole, in spite of its lack of creed or dogma, must have a standard representing approximately the average opinion of the profession on each moot point and this standard must be applied at least by educational institutions while (2) the earnest disciple of any special creed in medicine will not be content with the mere permission to hold individual belief but will naturally desire to affiliate with others of similar belief. The only other special school of medicine organized in New York, is the Eclectic and under present local conditions, this is not a school of medical opinion, but a league of advertising physicians. It is scarcely necessary to point out that the relations of the Medical Society of the State of New York to these two bodies are entirely different. The homœopathic school has always adhered to ethical practice and the unspecified profession will welcome its members to the Society, whenever they choose to consider the benefits of a united profession as superior to the practical advantages of a sectarian organization. But the Society cannot recognize either Homœopathy, Allopathy, Hydrotherapy, Surgery or any other single basis of therapeutics as binding. Meanwhile, the unspecified and the Homœopathic Societies are in harmonious relations so far as sanitary and other general questions are concerned. So far as ecclecticism—to advertise?—is concerned, we must confess to some feeling of regret that it should receive any legal support yet, from the practical standpoint of the welfare of the community, it is wise to remember that recognition implies some degree of control. The law cannot enforce a standard of gentility and dignity, it cannot refuse the right to practise to a man who advertises and it does well to assemble such men into a body where they can, at least, be under inspection and some degree of control. Lincoln's dictum that "You can fool some of the people all of the time" might well be taken as the guiding principle in dealing with irregular practitioners. The New York State law has established a precedent which may be roughly worded as follows: Protect the people by excluding individual charlatans and, whenever any particular form of charlatanism secures a considerable following, regulate it by compelling its exponents to organize and at least to go through the forms of examination and license. This process will weed out the worst and will shame the best into some degree of preparation for their work. Without going into details, it may be said that this process has the same value as the system of compulsory tagging of dogs.

The State law requires that a physicion must join and pay dues not to exceed a dollar a year, into the county branch of the Medical Society of the State of New York, or that he must affiliate with the corresponding Homœopathic or Ecclectic Society. This law is not, at present, enforced with regard to members of the State Association, although many members of the latter belong to the Society also. These joint members are, probably, nearly equally divided into those who are loyal to the Association but who comply with the old law, and into those who are loyal to the Society but who desire membership in the American Medical Association. Under conditions that have prevailed during the last few years, an attempt at enforcing this law would undoubtedly have led to the chartering of the State Association so that it would have been placed on the same legal footing as the State Society and its congeners, with regard to membership and control of examinations for a license

But, with a reunited profession, enforcement of the old law will again become possible and it will be a distinct gain merely to compel a dollar per capita tax for the common benefit of the profession.

In regard to medical education, the charter and legal precedents of the Society may prove to have a value greater than might be secured by any immediate legislation. At the time of its organization, the Medical Society of the State of New York was regarded in a literal sense as the medical faculty—a good old term which might well be revived, in the ancient spirit—and was entrusted with the supervision of the medical education and licensing for the State. With the passing of the method of apprenticeship, this power was allowed to lapse, but, within the last few years, it has been resumed and with so great practical success that other states have adopted the same system, with minor modifications. But in no other state and, we believe, in no other country, has the principle been so early and so clearly recognized that the profession should be the arbiter of its own constituent members. It is a matter of congratulation that, with the active or passive opposition of many medical colleges and with a divided profession, the society should have been able to hold its reacquired control over medical education and to increase the stringency of its regulations. With the reunited state profession, this power will not only be safe for the future, but it may be wielded still more vigorously, especially as the attitude of the colleges has changed from that of open hostility or indifference to a spirit of loyal co-operation, so far as all decent institutions are concerned. Moreover, it is only a step for the Society, rehabilitated as the organization of the general profession, to extend its authority to many problems of licensure, censure and hospital and dispensary management which hinge upon its control of medical education in the narrow sense. To take a still broader view, as soon as the State Society becomes an integral part of the American Medical Association, it will serve not only as an example, but it will possess a considerable influence in extending such powers to the profession of the other states as units and, it may not be looking too far into the future to predict a centralization of power in a branch of the United States government.

A. L. Benedict, A. M., M. D.

Buffalo, N. Y., Dec., 1903.

CARBUNCLES.

Their Successful Local Treatment with Liquid Air.

The treatment of carbuncles has resolved itself into a limited field among physicians and surgeons alike, and that is the field of surgery. The method we use to-day is to make free crucial incisions to the base of the infected area, pack, drain, curette or cauterize as indications may be. The object of this treatment is to prevent further infection taking place, and to thoroughly cleanse and evacuate the affected area by making a vent for the necrosed slough which must necessarily come away. This leaves a large ulcerated surface from the retraction of the four flaps left by the crucial incisions.

The question arises as to whether this is the best method of treatment. My colleagues will agree that no longer can we consider such treatment as the flaxseed poultice or in fact any poultice, unless we use a generous wet bichloride or carbolic dressing, of much service. Even with the use of the wet antiseptic dressing, a free incision is usually essential before recovery.

The aim of any treatment is to cure rapidly and not wait for nature unassisted to accomplish results. The operative procedure then, is the one most frequently resorted to. The knife has for generations been dreaded by the patient, and at times it is almost impossible to make a patient believe that the knife is his friend until it is too late to be of service. We cannot make the public look upon operations other than as trying and severe ordeals, associated with great suffering; neither can we assure them in these cases of carbuncles of complete relief from pain or the disappearance of the carbuncle, even though the knife is used freely. It behooves us to find some local treatment which can give relief to the patient and abort the carbuncle process.

In liquid air I believe we have a therapeutic agent which meets the situation. The medical profession in general are not familiar with the physical properties of this agent. For many reasons its use has been very limited, and only until recently has its supply been regular. We must remember that there is no limit to the amount of the tissue freezing we can accomplish with liquid air, it being a clear, light blue liquid at a temperature of 312 degrees below zero, and we must also bear in mind that this fluid is under perfect control and as little freezing as is desired can be accomplished.

Liquid Air when applied to live animal tissue completely freezes it—this means for the time being circulation is entirely interrupted and all the blood is driven from the parts frozen. All bacterial activity is also aborted. Within a few minutes blood returns to the parts frozen, the circulation is increased and there is decided congestion. Either by repeated freezing or one excessive application, complete distruction of the tissue can be attained. Upon this fact depends the success of the application of liquid air, in carbuncles. The manner in which I have aborted carbuncles by this method is truly astonishing. On the other hand if the disease has progressed to the extent of suppuration, it then becomes necessary to apply the air in the form of a spray, using a regular "Liquid Air Spraying tube" which I have devised for this method of treatment. This small tube is inserted into the sinus or cavity of the carbuncle, and the air is allowed to flow intermittently into the carbuncle until the tissues are completely frozen. If the tissues are frozen completely the disease will need no more attention, but if the disease requires further treatment we simply repeat the application. Within thirty minutes after the application of the liquid air into the sinuses, blood, serum and pus exude freely . This exudation continues twenty-four to forty-eight hours, thus relieving the acute inflammation. The carbuncle ceases to progress and is changed into a sub-acute inflammation of the infected area, apparently limited to a much smaller field. The after-treatment consists of a gauze pad of bichloride or carbolic or any of the antiseptic agents. Covered over this gauze pad is a large amount of cotton. The dressings are usually left on twenty-four hours and then the wound is washed thoroughly with a 1-5000 bichloride, and a new dressing applied. I cannot recommend this treatment too highly, for by the correct use of liquid air I have never failed to obtain the desired result in the treatment of carbuncles; one very severe with large axillary

involvement. Liquid air was applied but once on three different areas, and it absolutely aborted the process of infection.

In conclusion I will say that it is only fair to our patients to have my colleagues investigate liquid air in the treatment of such diseases and I am sure they will use it in all such cases.

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537 Fifth Avenue.

THE CLINIQUE

TYPES OF NEPHRITIS.

The subject which I will consider at present is that of nephritis in its various typical forms; namely acute Bright's disease or diffuse nephritis, and the two forms of chronic nephritis presenting a case illustrating each of these three varieties, and will point out the associated conditions occurring in each, also a case of nephritis in a child.

The first case that I will call your attention to is that of a young man, whose symptoms are of six weeks' duration. His present trouble began at that time and was ushered in by a series of chills and fevers, closely simulating those of malaria. He was seized with an extreme thirst and devoleped a polyurea. His feet became edematous and in a short time he was affected by a general anasarca, which was most marked at the end of three weeks. His skin exhibited a peculiar putty-like color. Upon examination of his blood no obvious anæmia was discernible and the discoloration of his skin was due probably merely to a superficial condition of capillary contraction. Examination of his heart showed some enlargement and symptoms indicating mitral regurgitation. The urine was found to contain albumin, sugar, epithelial cells, red and white corpuscles, hyaline and epithelial casts. Its specific gravity was 1006, and its color a dark red. This specific gravity with the associated polyurea seems rather a contradiction of conditions. To-day his urine is of a smoky hue, containing a little blood, and has deposited a sediment of a brownish red color, showing microscopically, hyaline and blood casts. The physical examination showed the existence of an old-standing endocardial lesion of mitral regurgitation without any obvious signs of a failure of compensation. With this we found associated this anæmic type of anasarca. His edema has now in great part disappeared. When he entered the hospital he had that swollen facial expression with prominent cheeks, indicating acute nephritis. This disappeared in a short time, but his face, as you may see, is again filling out, not an indication of health, but of beginning edema. His legs were tense and easily pitted. To-day that condition has nearly disappeared, but there is quite some of the characteristic whiteness, especially of the toes. The color of the rest of the body is not striking, although slight edema is evident in places. There is a slight pitting of the forehead. As I examine his chest I notice a ventricular enlargement, the apex beat extents out beyond the mammary line, the attendant systolic effect causing a slight thrill. The heart's action seems rather firm. Near the base we can hear a long, rough murmur; a slight accentuation of the second pulmonary sound is evident. The right border of the heart extends slightly beyond the right edge of the sternum. The enlargement of the left ventricle is outward and downward, the systolic murmur being transmitted to the axilla. There is a notable accentuation of the second sound. There is, therefore, a mitral regurgitation of more than six weeks' standing, that is, of a duration antedating the kidney trouble. There is in this case a negative history of rheumatism, scarlatina, or chorea, the diseases which might have caused the nephritis. The onset of the nephritis occurred six weeks ago. The man became suddenly ill with symptoms that were very severe. Examination of his urine disclosed findings that were in themselves sufficient for a diagnosis of acute nephritis. The microscopic examinations in cases of nephritis must not be pushed too far since they may become misleading. Thus in the nephritis of scarlatina, tube-casts will frequently be found in the first, second, or third day of the disease. Such casts are found usually only in the most acute and advanced cases of nephritis and they may lead, if found in the conditions referred to, to a mistaken diagnosis. Where, however, blood casts are found, we can make an almost certain diagnosis of an acute condition. I wish to call your attention again to the strange manner of onset. The chills and fevers he manifested on admission caused us to suspect malaria, but examination of the blood showed no parasites. Many of the cases of acute nephritis which come under our notice look very much like acute infectious disorders, because there are no very obvious symptoms. Fever, backaches, and limbache are prominent. The urine is not normal and it is only by a careful examination of it that we are enabled to differentiate the condition. Suspicions may be aroused by the excessive headache. Here we might suspect typhoid. There would be marked weakness of the pulse, and an increase in temperature. The increase in the pulse rate is not proportionate, however, to the increase of temperature. This feature is seen in typhoid fever, acute nephritis, and jaundice associated with fever. The examination of the urine is the one method by which we can make a differential diagnosis. In the case of this patient the feature that immediately strikes us is the apparent discrepancy of the symptoms, namely, the polyurea associated with acute nephritis. He noticed after three weeks this polyurea and a coincident edema. This is not the usual history of an acute nephritis, for we find in such condition a tendency to the excretion of very little urine or even to suppression. The excess of urine which we here find might be partially attributed to medication or to the extreme thirst and consequent ingestion of a great amount of liquid. But this of itself would not account for such a condition in a case of acute nephritis. The second point in this instance that requires explanation is the low specific gravity of the urine. This is at variance with what we usually find. The granulated casts which we find are indicative, as a rule, of a chronic trouble. The condition of chronic cardiac lesion in conjunction with these discrepancies make me suspect a chronic nephritis to which the acute trouble has been superadded. We have thus far treated him with a bland diet, mild diuretics, and with diaphoretic measures, using for this purpose the hot-air bath. This with confinement in bed has brought about some improvement. The urine is copious and there are no signs of danger. But in these cases even when improvement is very marked, we must be very

guarded in our prognosis. I have seen cases like this in which a sudden uremia has set in. There is no examination that can be made which will in any way foretell this danger. This patient seems to be doing well. There is no headache and he does not complain of any dimness of vision and we can discern no signs of trouble. We began the treatment with digitalis, administering the infusion in doses of 1 ʒi four times daily, continued for a few days. During this time the daily excretion of urine varied from seven to forty ounces, and there was a slight degree of fever. The temperature is now at the normal point. We have permitted our patient to sip during the day a lemonade containing cream of tartar, a harmless diuretic. If, as occasionally occurs, the action is purgative instead of diuretic, the use of a little opium is excusable. Opium is used with great fear in cases of parenchymatous nephritis on account of its supposed action of inhibiting the secretion of urine. In my experience, however, I have never encountered such suppression following the administration of small doses. The alleged ill effects of opium are probably only traditions handed down from one physician to another. Stephen Mackenzie of London, was the first to introduce opium as a sedative and sudorific in cases of acute nephritis, and he obtained excellent results, and good results have been obtained by the same treatment in this country. Hot strips over the abdomen have been used in this case. Later, when the cream of tartar began to show injurious effects upon the stomach we gave citrate of potash gr. 10 four times daily. At the same time the hot air baths were used, to which I attribute in great part his improvement. His first bath lasted one hour, but at the end of that time no diaphoresis was evident, a hypodermic injection of one-sixth of a grain of pilocarpine was accordingly administered and was followed immediately by a profuse sweat. Pilocarpine is very useful in these cases, but its free use is dangerous since, instead of producing diaphoresis it may cause a marked increase of some of the internal secretions. The salivation which it has been known to produce may be as marked as that caused by mercury. It has caused a decided activity of the bronchial glands—a pulmonary edema—with very disastrous results, the person "drowning in his own secretions." I have seen this happen twice at the Philadelphia hospital and many more cases are reported. In this man's case we pay very little attention to the condition of the heart. The digitalis which we administered was given not for its action on the heart, but as a diuretic. Were we to have signs of a failure of compensation the case would be different, but here no such failure has manifested itself, and unless it does the vigorous use of digitalis is contra-indicated. We may, however, use with good effect the mild cardiac tonics and we have given strychnine.

The next case which I wish to show is not quite so clearly representative as is the first. It is a more chronic type of nephritis. This woman is thirty-eight years old. She was admitted on the fifteenth of this month. Her history states that she has been married for thirteen years and has had seven children. She has had one miscarriage and had a still-born child four years ago. Since this pregnancy she has been subject to a persistent cough and to asthmatic breathing. Her first symptom was a swelling of the feet and a severe pain which became eventually located in her left leg. She has had a mild attack of pleurisy. There has been no vaginal disorder, excepting the miscarriage of last winter. She complained of headaches and soreness of the throat and mouth. Her general health, however, has been tolerably good. After two weeks of asthma she developed nausea and vomiting, her legs became swollen, and then the swelling traveled upward to her arms and her face. The next day she completely lost her appetite, her headache became more severe, shortness of breath developed and an extreme nervousness affected her. It was with this history that the patient was admitted to the hospital; the usual subacute course, the general impairment of health and strength, leading up to anorexia, nausea, vomiting, the persistent headache, the dulness and pallor which you see is here marked, and the gradually progressive edema are all features which point in one direction. Upon admission the pallor was particularly marked; there was considerable edema manifested in a puffiness of the eyelids. The apex beat was in the fifth interspace. No murmur was appreciable, the first sound was rather weak. In the following day the first sound was slightly accentuated and the second sound markedly so. There are no evidences of widespread atheroma. A slight haziness of the eyes was manifest. The lungs were normal and the examination of the liver and spleen negative. The abdomen was found to contain a considerable amount of liquid. The examination of the urine was our next step. The daily excretions amounted to 43 ounces running up to fifty. Examination showed epithelial cells, a small amount of albumen, hyaline and pale granular casts. There was no sugar. We began out treatment with the hot air baths, which are beneficial in all the forms of nephritis. Magnesium sulphate was given internally, together with Basham's mixture. This treatment was followed by the use of small doses of strychnia. Gradually the edema and the headache disappeared. There has been no gross change about the eyes and could discover by a rapid examination. There is only the fugaceous dimness of vision which is seen so frequently in an impending uraemic state. Investigating the heart signs more closely I found, as I have said, no indications of valvular disease. There was, however, a sharp ringing accentuation of the second sound, that characteristic "bucket sound." Associated with this condition of the heart I considered the history—the nephritis of pregnancy several years ago, and its recurrence four years ago after a stillbirth. The suspicion of a chronic nephritis was practically forced upon us by these symptoms alone. This nephritis must be the parencymatous variety, since there is the presence of albumen, a high specific gravity, epithelial casts, and other characteristic conditions of the urine. It is the chronic diffuse form. The condition of the heart is of the utmost interest, because upon this do we form in great part our diagnosis of the condition. It is our best indication as to the nature of the trouble. In our first case we could not use these heart indications because of the fact that the cardiac lesion long antedated the nephritis. Here we have the evidences of overaction, which is chronic and must lead eventually to an increased hypertrophy of the whole heart. The treatment is practically the same as in our first case. Beginning as I have indicated, the dropsy and uremia must be treated symptomatically

and a light diet prescribed. When the dropsy is pronounced, skimmed milk and butter milk, dried bread, crackers, zweibach, and foods of a similar nature should be depended upon. Upon subsidence of the dropsy food slightly more substantial may be given. Rice, oatmeal, vegetables, a little meat, and fruits are appropriate. Out of door life should be recommended. If circumstances permit, a change of residence to a warm climate would be advisable. Woollens should be worn next to the skin and either severe or prolonged exercise should be forbidden. As the symptoms disappear, tonics may be given. Strophanthus, spartein or convallaria might be used for the vascular weakness and mild unirritating diuretics administered.

SCARLET FEVER ORIGIN.

At a recent meeting of the Boston Society of Medical Sciences, at the Harvard Medical School, Dr. F. B. Mallory, associate professor of pathology, read a paper on scarlet fever. He said that in the skin of four cases of the disease which died in the eruptive stage he had found a series of bodies which closely resembled the various developmental stages of a protozoon. In his paper Dr. Mallory said:

While many of the common infectious diseases are due to bacteria, the lowest form of vegetable life, a certain number are due to protozoa, the lowest form of animal life. Of the latter diseases the best known and the most studied are the malarial fevers, of which three distinct varieties are recognized. In these malarial diseases the protozoa, or hemosporidia, as they are called, live and develop in the blood. Here they pass through, however, only an asexual development. If these micro-organisms in the human blood are sucked up by a certain group of mosquitoes, then they pass through, in the stomach of the mosquito, their sexual development, and are ready, after a certain length of time, to infect other people when transferred to their blood by the bite of the infected mosquito.

The bodies found in scarlet fever resemble the different stages of the asexual development of the malarial organisms, but do not live in the blood. Instead, they live in the epithelial cells of the skin and tongue, between these cells, and in the superficial lymph vessels and spaces of the corium. Like the malarial parasites, they multiply by forming segmenting bodies or rosettes. These rosettes are about one-third larger than the malarial rosettes, and the number of segments would seem to be about twice as many. Whether sexual development occurs as with the malarial micro-organisms could not be determined.

The importance of finding these bodies in scarlet fever lies in the fact that up to the present time absolutely nothing has been known in regard to the cause of the disease.

Dr. Mallory concluded with the statement that while he personally believed that these bodies were protozoa, and were the cause of scarlet fever, he was far from claiming that such a relation had been proved.

The paper was illustrated by colored diagrams and drawings and by a series of microphotographs, both of protozoa from a fatal case of malaria and of the bodies found in scarlet fever.

THE LAW AS TO VACCINATION.

The State Commissioner of Health says: "Save in one direction compulsory vaccination is not on the statute books of this State. It is a law, however, that all unvaccinated persons shall be excluded from the public schools. This law is strictly enforced in many of our municipalities. Its constitutionality has been affirmed by the courts of the State. This has been just recently declared in a notable decision handed down by the Appellate Division of the Supreme Court, so that no question can ever arise as to its legality. The State Department of Health would reaffirm that an unvaccinated person is a menace to the public health; and to have smallpox is a crime against the community."

Illuminating-Gas Poisoning.—Twenty-five cases of this accident, with analysis and treatment, are reported by Paul Monroe Pilcher, in the "Brooklyn Medical Journal" for May, 1903. His conclusions are:

I.—The toxic effects of inhaling illuminating gas are due primarily to a chemical change produced in the constituent elements of the blood, this being a substitution of carbon monoxide hemoglobin for the oxyhemoglobin, so diminishing the supply of oxygen to the tissues. Further, the direct cause of most of the symptoms is the diminished per cent. of oxygen contained in the arterial blood supplying the central nervous system.

II.—If the above be true it is a condition in which oxygen should be administered pure ,in order to force it into simple solution in the blood and so reinforce the remaining oxyhemoglobin.

III.—For the purpose of supporting the circulation, diluting the poison, assisting its elimination, and its possible influence in breaking up the chemical combination of the CO with the hemoglobin, a copious infusion of salt solution should be administered. Such infusions should be reinforced in the more severe cases by a direct blood transfusion, whereby an increased supply of oxygen-carrying hemoglobin is obtained.

IV.—To control the tendency to acute dilatation of the heart, a free use of cardiac stimulants should be early resorted to.

V.—Edema of the lungs is the chief of the secondary sources of danger and must be constantly watched for and every possible measure taken to guard against it.

Operative Possibilities in Cases of Advanced Carcinoma of the Breast.—These are estimated as follows by Dr. Lewis S. Pilcher, in a paper reprinted from the "Annals of Surgery," September, 1903.

Present experience warrants the statement that surgery can promise a very large proportion of absolute cures to cases of cancer of the breast, if its resources are employed as soon as the presence of the disease is determined, even though it be acknowledged that the disease is there already in an advanced stage .

It is not to be wondered at that in the past, with its records of high operative mortality and low ultimate immunity from recurrence, both patients and physicians have preferred to postpone efforts at extirpation until the burden of the local disease has become intolerable.

The influence of this attitude of a past generation still lingers, and to it is due much of the hesitancy to

at once seek surgical relief which we have been deploring.

As the knowledge becomes more general as to what has been and can be done by surgery for the cure of cancer of the breast, less hesitancy will be displayed by its victims in at once availing themselves of the help which is offered, and the proportion of permanent cures effected will be increased.

Intestinal Obstruction Due to Gall-Stones.—A paper on this subject, by Dr. Lewis S. Pilcher ("Medical News," February 8, 1903), concludes as follows:

The best results are only to be obtained by resorting to operation before the recuperative powers of the patient have become exhausted and while the local damage is still slight. As soon, therefore, as the symptoms of obstruction are positive, whether the presumption of a gall-stone as its cause is entertained or not, the surgeon is justified in opening the abdomen, first as a diagnostic and secondly as a therapeutic procedure. The presumption that the cause of obstruction is a gall-stone should not induce the adoption of the policy of delay in the hope that the obstructing body may eventually pass, but such a presumption should rather stimulate to early operation, for it creates the expectation of encountering a condition, when once the abdomen is opened, which is readily and quickly amenable to simple surgical efforts.

Doubtless if this recommendation is followed some cases will be operated upon that would have recovered if they had been left alone. Possibly some operative fatalities may also occur among these same cases; but the proportion of operative fatalities among patients unnecessarily operated upon will bear but an insignificant relation to the increased number of operative recoveries among patients who but for this early interference would have died as the result of gall-stone impaction.

Chloroform in the Preparation of Vaccine.—A. B. Green ("Lancet," June 30, 1903; "N. Y. Med. Jour.") has found that by the use of a solution of chloroform in distilled water, the extraneous bacteria of vaccine are eliminated in from one to six hours, the specific germ remaining freely potent for vaccination. The best solution is one in distilled water, having a strength of one in two hundred. The following considerable advantages are to be gained: (a) So speedy an elimination of extraneous micro-organisms is attained, that vaccine, practically free from such organisms, can be distributed for use within a few hours of its collection from the calf. During smallpox epidemics this would be of the greatest importance. (b) Vaccine, characterized by high but transient potency, can by means of this chloroform process be used at once before its activity has deteriorated. (c) In hot climates, where vaccine loses its potency rapidly, the process is of value for the same reason.

DR. HORACE M. PAINE.

Horace Marshfield Paine, A. M., M. D., died in Glens Falls, N. Y., Dec. 6th, 1903. He was born in Paris, Oneida Co., November 19, 1827. Dr. Paine graduated at the Medical Department of the University of the City of New York March 11, 1849. He was for many years in practice in Albany, N. Y. He devoted years of effort to promote legislation extending equal rights and privileges to representatives of all recognized schools of medicine and to elevate and unify medical educational standards through State control of medical licensure. He was a voluminous writer upon any subject which interested him. He devoted the greater part of his life to medical society work. He assisted in the formation and development of numbers of medical societies, each of which bears the evidence of his untiring industry, zeal and practical sagacity. His acknowledged skill in originating and rare tact in formulating and executing the expressed purposes and objects of the membership are illustrated by the improved status and steady growth of each of the medical societies with which he had been officially connected.

His three sons survive him and are all active and eminent practitioners of medicine.

The Department of Health of this city reports the number of deaths for the third quarter of 1903 as 16,637, which, on an estimated population of 3,732,903, gives a death rate of 17.69 per 1,000, as against an average number of 18,368 deaths for the corresponding quarter of the preceding five years, which, upon an estimated population of 3,448,567, gives a death rate of 21.14 per 1,000, a lowering of three and one-half points. The deaths among infants under two years of age from diarrhœal diseases were 1,118 less than the average for corresponding quarters of the preceding five years.

Comparing the deaths from the following causes for this quarter with the preceding quinquennial average, we find an increase of 96 deaths from pneumonia, 99 from organic heart disease, 78 from cancer and 95 from diphtheria and croup. The decreases other than that previously mentioned were among the following diseases: Typhoid fever, 36; pulmonary tuberculosis, 72; whooping cough, 99.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN SURGERY.

1. Give the indications for reopening wounds.
2. Define cyst. Give a classification of cysts and mention the characteristic clinical features of a hygroma.
3. Give the indications for tracheotomy. Describe the operation.
4. Mention three varieties of fracture. Describe one of the varieties mentioned.
5. Give the early symptoms of tuberculosis of the hip-joint.
6. Define arthritis deformans. Give the pathologic changes and symptoms in a case of arthritis deformans.
7. Mention five of the most common accidents following attempts to reduce a dislocation.
8. Give the etiology and treatment of epistaxis.
9. Mention the common syphilitic lesions of the nervous system.
10. Mention the various forms of conjunctivitis. Give the treatment of one form of conjunctivitis.
11. Give the details of a method of making the hands surgically clean.
12. Mention the causes of death from cutting of the throat with intent to kill.
13. Give the treatment of gunshot wound of the femoral artery at the apex of Scarpa's triangle.
14. Give the symptoms and treatment of lymphangitis.
15. Define cheloid (cheloma). Give the etiology of cheloid.

MISCELLANY

—The medical dean of Paris now is Dr. Felix Marie Momeriet, dean of physicians and hospital internes, who was born May 11, 1811. He has been a doctor since 1840.

—The only yearly paper in the world is published at Cape Prince of Wales, in the Arctic Circle. It is called the "Eskimo Bulletin." The subscription price is 10 cents a year.

—Chicago's death rate is still the lowest in the land. According to the annual report of the health department, just compiled, it is 14.53, as compared with 19.4 in New York, 18.73 in Boston, and 17.67 in Philadelphia.

—M. Victor, writing from Joppa, Palestine, says that a great number of observations seem to demonstrate that certain birds, particularly swallows and sparrows, disappear from localities that are afflicted with the plague or with cholera. This raises the question whether it is also true of places contaminated with yellow fever or other contagious diseases.

—A scientific gentleman recently passed through a peculiar experience. He tasted a small fraction of a grain of radium. It acted as a powerful stimulant, affecting both the heart and kidneys. It was several hours before his pulse became normal. It affected the mind also, producing hallucinations.

—Previous to the filtration of the water used by the public in Berlin and Hamburg the death rate from typhoid fever in these cities averaged 1 in every 2,600 inhabitants. During the six years after the installation of filter-plants the death rate had decreased to 1 in 11,000.

—Taguchi (*Sei-I-Kwai J. A. M. A.*) compares the weight of the brain as noted in 397 male subjects, with similar statistics in England. It ranges from 1,345 gm. between 14 and 20, to 1391 between 40 and 50, and declines to 1,333 between 70 and 80. The corresponding English averages for 699 subjects were 1,376 gm., 1,360 and 1,290. The Japanese male brain, therefore, averages higher than the English, as also the female brain.

—A baker is the authority for the assertion that the latest fad of dyspeptics is bread made with sea-water instead of fresh water. "It has a saltier taste," he says, "than we are accustomed to, but it is very palatable. In fact, he who likes salty things is apt to like it better than ordinary bread. A physician," he says, "asked me about three months ago to make some of this bread for his patients. At first I made six loaves a day, but now I make thirty. My sea water comes up to me three times a week. The dyspeptics who buy the bread say it is the only kind they can eat fresh without discomfort."

—That the subcutaneous introduction of paraffin into the tissues after the method brought out by Gersuny, is not devoid of serious consequences has been shown by a report made by Dr. L. Hurd at a recent meeting of the Academy of Medicine. The case reported was that an individual who became blind soon after receiving an injection of paraffin for the relief of a nasal deformity. Two injections had been given with no dire results, but while receiving the third the patient suddenly lost his vision. The cause of blindness was an embolism of the central artery of the retina. The blindness is permanent.

—A microscope which ordinarily magnifies 11,000 times has its power increased to 16,000 diameters by immersing its lens in vaseline oil.

—A Berlin physician of renown (*Amer. Med.*), believing that excessive practice at the piano is responsible in a measure for the alarming spread of nervous diseases, has instituted a campaign against beginning the musical education of children at the early age now customary both in this country and in Europe. In his opinion no girl should be permitted to enter upon the study of music before the age of sixteen, and even then the hours of drumming upon the keyboard should be restricted to two a day. Of 1000 girls who undertook piano practice before the age of twelve, 600 later became afflicted with some form of nervous disease, but of 1000 whose musical education was neglected only 100 ever suffered in this manner.

—The Weisbaden, Germany, plant in which water is purified by ozone at half the cost of filtration produces hourly about 70,000 gallons of pure water. The electricity is generated in the form of alternating currents by two dynamos, each of which is coupled with a steam engine. Besides generating electricity, the two steam engines pump the air for sterilization. The combined capacity of the two steam engines is thirty seven horse-power. In order to obtain electric currents of very high tension, which are especially suitable for the conversion of ordinary oxygen into ozone, the alternating currents are passed through transformers. The appliances are housed in tower-shaped compartments. By the introduction of ozone the problem of sterilization, purification and revivifying of water easily and completely, without danger of making the water harmful, has been solved.

—The Turin Academy of Medicine has awarded the Riberi prize of $40,000 to Professor Scalve for his successful anti-anthrax serum as the best work accomplished in the medical field since the prize was last awarded, five years ago. When the serum is used local treatment is unnecessary, and if administered in time the lesion heals and the tumor is spontaneously absorbed. He has found the best method to be a single large dose slowly injected (40 or 50 cubic centimeters) at three or four points in the forearm or back of the hand. This serum treatment has found a cordial welcome in Argentina, where it has been applied in 130 cases, reducing the mortality to zero except in the moribund cases. Competition for the Riberi prize is open to the world, but preference is given to a work that tends to improve conditions in Italy.

—In a comparative table of stature, arranged according to nationalities, the United States Indian, says *American Medicine*, stands higher than any other race in the world, though the Patagonian runs him very close. The white citizen comes next. The United States negro ranks fourteenth in the scale, and of all the countries considered, the Portuguese are found to be the shortest. It has always been proverbial among anatomists that blond nations are taller than their darker neighbors. This is due to the geographical position of the blond races. They are characteristic of the north, and on account of the lower degree of temperature are induced to take more exercise, which throws them more in the open air. At the top of the list of countries, arranged in order of stature, the first seven, after the United States white men, are Norway, Scotland, British America, Sweden, Ireland, Denmark and Holland, all northern nations.

ORIGINAL ARTICLES.

LIFE, AND THE POTENTIALITIES IN THEIR CONTROL OVER MATTER.

BY E. C. HEBBARD, M.D., BOSTON, MASS.

Member of the Massachusetts Medical Society, American Medical Association, The American Association for the Advancement of Science, etc.

THE first and second papers of this series argue to prove that life and matter are separate entities—that when the forces of nature had prepared a nucleus, life came. That life, therefore, must be a supernatural endowment, and the body only so much dead matter raised to an organic state by the aid of the physical forces and the association of life; that life cannot in any sense be considered matter or as springing from matter. The second paper deals with the matter of the body and the physical forces controlling it, showing how the body is in a state of health when in its normal chemical equilibrium, a departure from which is disease, due to an interference with the play of the physical forces on their nucleus, thereby interfering with chemical integrity and shows that to cure disease, we must reinstate those chemicals—the loss of which permit interference with the normal chemical interchanges; thus aiding nature by the use of those forces and materials originally selected by her when building the body; reasoning that it is necessary to understand the action of nature's forces on matter that we may be enabled to formulate according to her requirements for the successful treatment of disease, thus proving that an exact science of formulation is possible. Formulæ to illustrate the argument is furnished.

Before medicine can become an exact science, the natural forces controlling the chemical activity of matter must be understood and catered to. These forces are not considered in the teachings of any medical school. Knowledge gained at the Universities should be of such a nature that it would enable the students to philosophize upon their surroundings. Methods should be instituted to enable them to understand the purposes for which they have studied medicine. They feel incompetent without knowing why, when called upon to treat any disease that is beyond the ordinary means of recovery. They can hardly understand why it is impossible for them to cope with the diseases that they are called upon to treat; feeling incompetent, and this being known to the laity, explains why they themselves undertake that which should belong to the medical practitioner. When we know that empiricism prevails we require to go no further for the reason of this fact.

What are these natural forces? How do they act? Are they governed by special or general laws? Is there uniformity in their relativity to organic and inorganic matter?

The human body represents a continuous series of chemical reactions; these reactions are controlled by the physical forces, the potentialities; they cannot be explained in any other way, they were active before life came in preparing the units of matter for the association of life, but before considering the action of these forces and the cause of the transformation of energy by which molecular activity is sustained, we will first consider in a brief way the relation of life to matter, for we, as physicians have to deal with matter alone in its action and results of action.

I want to prove absolutely that there is no necessity for matter to be considered as living matter. I claim that the whole phenomena of organization can be explained on a chemical basis, and that it is not necessary for food taken into the body to be elevated into the living (so-called) body itself by a process of resurrection; that food does not minister to life by becoming living. The red and white corpuscles are the formed elements to the production or continuation of organization. These originate from the food taken into the body.

When we ascend higher in the scale of organization and touch the region of mentality, we then have cells that are supposed to be endowed, in a materialistic point of view, with their elements of contribution towards consciousness, and as each particular thought involves a waste of substance, and it is supposed by the materialist that the broken down cells of the brain represent the broken down thoughts of consciousness, in which case the brain should be in possession of a triple power which is not common to the other organs of the body; it should be enabled to elevate the elements essential to its own formation, and in addition, to be a sort of instrument for the elevation of thought. This is purely and simply the materialistic point of view in pschyic or conscious evolution. I am opposed to the materialistic view, which is essentially monistic in its argument, my position being dualistic, and that the brain has not the power of secreting thought, but merely possesses in an elevated degree the same power that every organ of the body possesses.

Thought is associated with the sensorium, but does not eminate from the substance of the sensorium. The one in the form of psychic continuity is one of the evidences of the gestation of thought, which is absolutely distinct from the substance, in no way related, but only temporarily associated.

The protective substance of the blood known as autolytic ferments or antibodies or compliments, look after the disposition of the broken down cell no doubt, and so prevent auto-intoxication and the development of anæmias uremic poisons, inflammation, etc., but what compliments are there that look after the detritus of the broken down thoughts of consciousness and so prevent the development of spiritual poisons in the shape of immorality and crime? Can a spiritual germ be found that will answer this question or shoulder the responsibility?

There is no doubt but matter was created first Life came when matter was in the state necessary to evidence life. There must have been an influence of design, an agency at work to bring about these conditions, the origin of which cannot be explained by any natural law. We simply assume in this process of evolution that supernatural agencies must have lent their aid, for nature without this aid could not elevate matter in such a way as to produce things animate and inanimate, organic or inorganic. Supreme wisdom is here manifested as architectural designer, the instrument used being the agencies of the physicist, the potentiality of heat, light, electricity, mechanical power and magnetism, these can be analyzed in the study of matter, but the other agency, which we term the supernatural agency, "the influence of design," cannot be brought into the sphere of observation or experimentation. We are thus warranted in assuming that life must have been a supernatural endowment coming to matter, when nature

had, under the influence of design, arranged her units for the life requirement.

The physical forces acting in the accretion of the units of the nebulæ to form all the chemical compounds, were the forces used by nature to prepare the units for the manifestation of life; thus showing that if the means of preparation were chemical, the endowment of life must have been supernatural. Life and chemical activity are therefore distinct entities or essences temporarily associated.

At death, which is an appearance, not a reality, there is a separation, the chemical returning to the original state, the breath of life passing on necessarily.

The spirit, the life liberated from its material environment, from its reality, can have no end; the real things never change. As we account for matter and force, so also must we account for life in which the creative faculties image the Almighty. Life springs not from the cell which is matter, but when by the aid of nature's forces matter is elevated to a state for living association, life comes and remains as long as the citadel is in proper repair. On the other hand, the hypothesis of the physicist, viz.: "life may be the transmission to dead matter of a form of motion sui generis."* Can a "form of motion" be conceived of in anything other than matter? No form of matter has ever evidenced life sui generis.

Weismann, hunting for the vital unit or biophor, estimated that a biophor, contained 1,000 molecules, a fecundated ovum 25,000,000,000,000 organic molecules, and yet, he failed to find a vital unit. Psychical processes cannot be explained by mechanistic reasoning. "The smallest cell exhibits all the mysteries of life, and our present methods of investigation have reached their limit." "Living substance is composed of no different chemical materials from those occurring within lifeless bodies." † "An elementary vital sul stance exists no more than a specific vital force.

The "Internal sense" of Bunge, or the "specific energy" of Muller, or the processes of our own consciousness are something partaking of that which is higher than matter. This is the essence of vitalism. A vital unit does not exist; yet the cell is the seat of the vital process, inasmuch as it sustains the play of the physical forces, life acting as a controlling factor.

When the physical forces had prepared matter for the inception of life, life appeared. It is not possible for an element to yield that which is not in it. Yet, from a materialistic point of view, it has to account for all things natural or supernatural.

The phenomena of reproduction is the physical distinction that is the most apparent and about which all seem to be agreed. The highest order of nature is manifested in its eternal passivity in which we can find no organizing process nor evidence of reproduction. The formation of crystals is the highest power of nature. Reproduction belongs to life, matter being merely subservient. It may be said that there is strong evidence that formation and transformation in the eternal passivity of nature argues that nature possesses the power of reproduction. Such analogy is found in the formation and transformation of the tissues in living bodies as these are the changes of the inorganic matter of the tissues which never reach beyond the chemical part of man's nature or composition. Progressive differentiation can only be admitted in the presence of vitality. Take any of the elements that are present in any organized body and examine them. They are identical and of like nature throughout to what they were before entering an organized body. So that we have no reason to suppose that there has taken place any progressive differentiation in oxygen, hydrogen, phosphorus, sulphur, etc. Imagine these elements having the power to arrange themselves without any other assistance outside of themselves by progressive differentiation into a living mass; can it be possible that inorganic nature takes such a stupendous leap above itself as it were, to soar above its own environment and thereby become so suddenly conscious of its own existence? This is the conclusion to which we must come if supernatural agencies be ignored. If such were the case we should expect to find evidence of diffenentiation in these elements themselves. No evidence of any such change has presented itself in any one of these things. Oxygen is oxygen; hydrogen is hydrogen; th same with the rest of the elements. It could not be if they differentiated into living matter as evolutionists would have us think. No combination of elements can possibly produce anything foreign to their nature; life is not innate in them, and cannot be produced by them, but when controlled by the agencies of nature and so sustained in their activity in the cell nucleus, a temporary home for life is furnished and life comes. Life therefore is an endowment.

May it not be considered a supernatural endowment? If so, we have discovered the creative power of intuition and so have the evidence of infinity.

Intuition creates those things which have no material existence, as inventive genius can testify. The inventor makes his plans and drawings from the image of his mental creation—the same with the painter, for he sees the picture long before he can cause it to appear on the canvas. Indeed, may not what we term genius be only the power to completely reproduce the perfect thing we create through intuition? We get relative knowledge through experience but absolute knowledge can never be obtained outside the sphere of intuition. Intuitions arise from the gestation of thought in the same way that mental and morphological impressions are transmitted. Genius may be considered as evolutionary flashings of a spiritual essence.

Man, the composition of the natural and supernatural may have been created to develop a personality, an individual ego. Being specially endowed with reason and intelligence his creative faculties destine for him the desires and pursuits of his life, and he is more or less accountable, being thus endowed. Psychic differentiation thus continues with morphological differentiation. What is apparently death may thus be the beginning of a purely spiritual existence. If life is distinct from matter and force, as we argue to prove, why should it not possess the ability to preserve its eternal identity? The thinking part of man is a loan from the Almighty.

Life is everlasting and from its reality can have no end. Matter continually changes; life never; if one is indestructible the other must be continuous, possibly as a disciplined spirit, armed and well prepared for further duties under other but like conditions of psychic evolution.

Science is face to face with this question to-day. Lord Kelvin's hypothesis that "Life originated on this earth through the moss-grown fragments from ruins of another world" is truly "moss-grown," he claiming that other worlds of life besides our own have existed and are existing; this also is the theory of Preyer,

*Prof. McKendric before the British Association at Glasgow.
†Verworn.

also of Richter, and is known as the theory of cosmozoa.

Neither energy, nor matter with which it is associated can account for life, nor is the origin of elements—nor is electricity, which some writers would have us believe is life itself, able to account for this continuous entity we call life. All these "are of the earth earthy"—life is superior to all and must be looked upon as only associated with matter for a limited time; it being in all probability an endowment from the Almighty or the "Unknowable," as herein before stated. With this view accepted we are able to reason intelligently for great discoveries, because we have eliminated the stumbling-block—life.

For a continuous aggregate we must look to the supernatural. Life is a continuous aggregate acting through a material nucleus, for the inception of which the simplest units of matter had been prepared by a process of elaboration by the physical agencies of nature, at which stage they took on the process of vivification. Let life go as an endowment from an unknowable cause, it is not matter, and is subject to no laws of change that is possible for us to conceive. This leaves us matter and energy to consider freed from any perplexing life theories; and the "process of evolution, the manifestation of power inscrutable to the intellect of man" becomes an open book for our study. Tyndall says again, "promising excursions into the unknown are invariably terminated by barriers which, for the time at least are insurmountable."

If the material seems to live it is because the life lives in all parts which constitutes the body; the life is the man, the body but a garment which covers him, or a tenement in which he abides. The body can only derive its sensibility from the life within it. There is no sensibility in matter as matter. If life is external, matter must be dead.

Life is the most powerfully manifested proposition the investigator has to deal with. It meets him at every turn and confounds him in thought and action. Drop it in our reasonings on matter, and its significant absence will soon appear in the ease with which the "unreasonable" and unthinkable" and inscrutable cause" will open up the sequence of events in generalizing the theory of the material universe and the conservation of energy.

Sir Isaac Newton, in his Principia, took into consideration everything inter-dependent, without considering external sources; he took into account all substantia and claimed that inter-stellar relationship came in by an internal source. He apparently proved the absolute relativity of things, as far as he explained them, but beyond that nothing is stated. For example, he takes the center of the solar system and the inter-dependent relativity. He is dependent on that system as a whole. There are other systems remote from the solar system that have their inter-dependent relativity equal with the inter-dependent relativity of the solar system, and when we take the sum total, the aggregate of inter-dependent relativity of every nucleus of the universe, we have one grand discreet whole; beyond this he has nothing to say.

What is wanted to-day is authority to reason on that which is external and not mentioned by Newton, the life and its influence as a governing power over molecular activity.

In the study of the composition of matter, particular attention is given to the atomic hypothesis, one class of reasoners claiming that each element has its especial inherent characteristics, the other class claiming that the character of each element is a manifestation of one and the same influence or cause.

In the study of osmotic pressure the physiological chemist has found that the prevailing idea that the molecule remained intact when organic substance is dissolved and are only separated from one another by the solvent, is not wholly true, but that a disintegration takes place in the groups of atoms—these dissociated particles or ions being charged with electricity, some positively, others negatively. In proportion to the extent of electrolytic dissociation specific properties are conferred. What these properties are is not clear to the chemist. Knowledge of them is of the greatest importance to the physician. The chemist has no theory explaining the origin of these elements or their relationship, but goes so far as to tell us that "chemical change is the beginning of life." This is not true. It matters little whether elements are independent forms of matter or relative one to another in our study to ascertain a knowledge of the beginning of life or the cause of each element having a distinguishing characteristic sufficient to give it a name. **Elements are nothing more or less than compounds of simple matter plus their potentialities.**

Our reasoning is as follows: originally there was only one form of matter, amorphous or un-crystallizable matter. This was gradually acted upon and modified by the external agencies of nature, in the form of a mechanical atmosphere, causing its differentiation into all elements and compounds found in the universe, thereby bringing order out of chaos. These external agencies are the physical agencies of nature, the potentialities; they are distinct from matter and possess the power of modification. It is the potentialities which gives to the atom its characteristics whether it may be broken down or not as in the radioactive. The theories of right and left handed arrangement of structure is physically correct, but does not satisfy as explaining the character of the atom, or the reason of their inter-dependency. A complete theory of matter can never be formulated on the one ether theory. The potentialities as a second ether answers all requirement to this end, both physically and chemically. The relative position of atoms in a substance gives the distinguishing characteristics.

Chemical compounds arise from the arrangements of the atoms, yet many physically different substances have the same formula. This is isomerism. The physical agencies (potentialities) acting on one kind of matter also accounts for the physical and chemical distinction between organic and inorganic matter without requiring vitality to explain the distinction. It is not necessary for matter to live to explain the phenomena of the organization of matter. It is wholly chemical and in its formation, life is not required. When nature's builders form the house, the tenant moves in and occupies it as long as the builders keep it in repair. When the agencies of nature cease their action or play on the nucleus of matter, it means "death." When the carpenter reports the house past repair, the tenant moves out and the destructive germs soon resolve the matter back to its original elements to again start anew, for the potentialities which gave the distinguishing characteristics to the elements are still working and new characteristics are rapidly formed. "The ethers of the elements there-

fore are there." The life liberated must be accounted for, why not as a continuous entity?

Protoplasm is the nucleus of action for the individual life. Its formation is probably due to the action of sunlight on phosphorus in the nucleus prepared by the agencies of nature; the incentive to animation being the electrical energy or potentiality pent up in nitrogen. This agency being aided by the potentialities of heat and magnetism as pent up agents in magnetic iron, carbon and amorphous matter, thus drawing forth the electrical energy from the polarities of the earth through the phosphorus of the nucleus. The oxygenating process being started, amorphous matter is rendered uncrystallizable. With the prepared nucleus of organic matter generation and life comes. This theory applies to all forms of matter.

I want to state positively that there is a distinction between living and non-living in the sense of there being an association of colloid* with the albuminoid and the crystalloid. In all instances of living matter, so-called, we must have an association of colloid with the crystalloid. The colloid makes the crystalloid subservient to itself as a whole.

The colloids are the intermediate necessity to connect or associate the material with the psychic, the binary recombining with the ternary or through the colloid the binary becomes ternary, there being no ternary formation in animal bodies in the absence of the colloid.

Crystalization goes on internal as well as external to the earth, but in the internal there has been no such thing as living association with the crystal. In the external we have abundant evidence of such association. In a morphological sense the crystal possesses greater power than the human being, as a crystal can repair itself under favorable circumstances which would be equivalent to the human body acquiring a lost limb again when removed from whatever cause.

The albuminoid or colloid defined is that peculiar viscous or jelly-like substance found in protoplasm and all the albuminoidals from the lowest speck of living matter to the highest found in animal and vegetable bodies. As the albuminoidals are distinctly the colloids of the body, they may be said to represent the animal part of the body as distinct from the crystalloids, in which the chemical activity of the body is manifested. The albuminoid is an elevated state of the natural requirement to aid in the appearance of life, which comes by an association with the crystal, the colloid and the crystal always being present as the colloid makes the crystal subservient to it in its functionality. In all instances of so-called living matter, we must find these two in association, one with the other. The absence of the colloid would indicate the absence of life.

I make the distinction between the organic and the inorganic matter by colloid formation on the one side and crystalloid formation on the other, as the colloids are necessary to animation, but the crystalloids are not so much so, since they can exist in the absence of animation, but colloids could not do so.

If any momentous question exists in the phenomena of organization, it is concerned in the knowledge of how the colloid commenced which is the thing necessary for the possibility of life at all.

Matter associated with life yields both crystalloid and colloid matter when taken from the body, and since we can have the colloid manifesting life without the crystal, there being mineral matter only that does not assume the crystalloid form in the bodies of the lowest units of life, these being almost purely colloid specks, it proves that the colloid matter must be the animal matter of the body as distinct from the crystalloid.

In order to form a colloid body, we require in all instances the same aggregation of chemical matter which forms its peculiar complexity. This complexity is found in every living body, arranged exactly the same. We do not require a special aggregate of chemicals to form crystals, as crystals can be formed by different and opposite kinds of chemical matter. Homogeniety is the morphological peculiarity of the colloid and hetrogeniety the morphological peculiarity of the crystal.

The colloids or proteids were required before life could appear. All chemical activity culminates or reaches its highest point when the colloids are elaborated. The condition for life to appear is then formulated by nature, at which time the phenomena of growth and reproduction commences. Upon the colloid we must depend for the condition or manifestation of life. The inorganic part of the body is the mineral part and in the absence of the mineral, life could not go on, making the mineral of the inorganic as indispensable to life as the colloid of the organic or so-called living.

The albuminoids or proteids are a class of organic compounds found in animals or plants and are composed of carbon, hydrogen, nitrogen, oxygen, phosphorus and sulphur. They are amorphous, more or less soluble in alcohol. They are the chief constituents of blood, muscles, nerves, glands, etc., so that the colloids upon which life depends are preserved by the alcohols of the body which prevent their dissolution and thus preserve life and are required in prolonging it.

All the colloids necessary to life eminate from animal mucilage, which they resemble in some respects. Animal or vegetable starch is the animal and vegetable mucilage.

Crystallization existed before colloid or albuminoid formations, in those ages before intelligence appeared.

It is well known, according to the experiments of Professor Tyndall in the Royal Institution, to a certain extent, how crystallization proceeds, but no one has shown that there is any reproductory power in crystallization further than that some crystals can aid the production of others, and that some crystals can repair themselves by accretion of matter until they become perfect again, which resembles the reparative process in nutrition. Beyond this the crystal ceases in its function. In the accretion of particles to the formation of crystals we have evidence in in-organic nature of the forces acting from the perifery or circumference to the centre by the accretion of units which should be understood as manifesting the law of symmetrical aggregation, the units being arranged during crystallization by the forces internal and external to the matter acted upon.

Crystallization belongs entirely to inorganic nature and requires the opposite agencies to evolution

*Colloid, a substance (as albumin, gum, gelatin, starch, etc.) which is of a gelatinous rather than a crystalline nature, and which diffuses itself through animal membranes or vegetable parchment more slowly than crystalloids do.—Dictionary.

as a process which directs the accretion of matter in the formation of symmetrical figure, the culmination of which ceases when the crystal of whatever kind is formed. Therefore, the phenomena of evolution and crystallization are opposed to each other and require opposing agencies for their manifestation. Crystallization is limited, but evolution is eternally active. The limitation of morphological perfection is reached by crystallization, but has not been reached in the process of evolution, although its possibilities are apparent by the improvement going on in evolution. Each particular and different crystal demands in all instances the same influences which minister to its morphological requirement.

Suppose evolution and crystallization to go on in the same body, at the same time: the highest order of inorganic nature would be manifested in the process of crystallization which is altogether external. The highest order of organization is produced by evolution, so that the complete cycle of nature's productions is manifested in crystallization and colloid evolution. The forces forming the crystal are the same forces acting in or controlling the symmetrical aggregation of the cells forming the human body, but the evolutionary agencies enter nature from the supernatural sphere.

There must be a reciprocal response between the forces acting interior to a substance and those acting exterior and upon the substance. Whether these forces are identical or not remains to be proved. In what is called living matter, there are other agencies besides force acting which distinguishes the difference between living and non-living or inorganic matter. The agencies acting within and associated with the living matter possess nothing in common with the forces of nature. This belongs to the matter and is always present in the matter, the matter commanding it at will, as it were. To be intrinsic in the matter, the matter must assume the shape at will, independent of any external agencies or forces. The life either shapes the substance or the substance shapes itself to the living requirement. There is an increasing complexity of material going on where life manifests itself from the lowest unit up to the highest aggregate in the building up of its chemical fabric or the weaving of its web or histological structure.

Protoplasm is that highest complex compound produced by a contribution of all those different colloids derived from the splitting up of all those hydrates taken into the body as food. Mineral matter is necessary and associated with protoplasm in order to continue the chemical changes going on in the process of reproduction, but mineral matter is perfectly distinct from the colloids of protoplasm. The physical agencies differentiate the colloids until they culminate in the formation of protoplasm, so that protoplasm is a representation of the completely elaborated elements, both colloid and mineral, necessary to its complete formation, that is, all those elements and compounds taken into the body as food.

The human body is only an elevated state of the soil of the earth—of its common elements—they have not what we term life—they can produce no life—they only form a nucleus for its action.

The chemist knows nothing of the origin, nature or composition of protoplasm and little of its functionality, nor can he know until he satisfies himself that it was prepared wholly by the agencies of nature before life came. There is positive evidence that carbon and phosphorus appeared before life. It is this complex matter protoplasm and the potential energy controlling its functionality that we as physicians must understand before we will be able to reason intelligently on the cause of disease and the gradational departure from normal chemical equilibrium, which is health. If the body is not alive, if its organic state is due to the play of the potentialities (a composition of heat, light, electricity and magnetism, mechanical power being manifested during their activity), on the nucleus of matter, we have a fair field for action, inasmuch as we can eliminate the question of life from consideration.

A manifestation of the control of matter by the potentialities is seen in the continued metabolism of cells after life has departed, as illustrated by a person drowned or struck by lightning. This power if aided, often continuing for six or more hours. This gradual cessation of vital activity is termed Somatic death. Through the aid of the potentialities energy is developed and sustained in its play on matter, but for the origin of energy we must look beyond the ether of the physicist to what I term for the sake of argument a second ether, a composition of the potentialities, a form of mechanical atmosphere permitting the manifestation of heat, light, electricity and magnetism, the recognized imponderable physical agencies of nature. These agencies are pent up as potentialities (latent energy) in the solids, liquids and gases of the one ether of the physicist; they are the directing influences governing the combination and activity of the corpuscles or ions of the atoms and molecules.

Material changes in all matter is due to the disturbance of these potentialities. This fact is of the greatest importance to the physician, for it is to these potentialities that he must look to for aid in restoring the normal integrity of the parts when diseased, and to which his chemical aid in the form of medicine must be furnished, when they, through advanced disease, have lost to a certain extent their incentive to activity. Thus we have scientific medicine aiding nature by supplying the means originally selected by her for body upbuilding and repair.

This subject has never been considered by the physician. When it is understood and adopted our therapeutics will be on a purely scientific basis and the medical profession master of diseases.*

These highly attenuated agencies, heat, light, electricity and magnetism, are the causes of motion of atoms by inclination to combine. The first process of mixing of the vaporus elements for the production of compounds was due to this inclination to combine, electrical fixity being the cause of the relativity of the units in combination, this fixity being the most feeble in gases.

The inclination to combine is the cause of motion. The first clashing of the elements was the cause of heat and incandescence, and the nebulæ or fiery vapors. Then came the liquid from the heat, and through electrical fixity light became latent. Then by closer electrical fixity came the chemical compounds in which the potentialities heat, light, electricity, and magnetism are pent up, mechanical power being the equivalent of the work done in the act of combining. Cohesion is the reciprocal expression of that energy

*This subject is considered fully in the second paper of this series.

which holds the units of the same elements together.

Through all of these natural processes the divinity of impression seems manifested. Matter being of like nature in all instances, the elements can be described only by their potentialities. *Oxygen promotes combustion because of the intensity of the potentialities of the units to combine with combustible matter.

The nitrogen in our atmosphere acts to protect living beings from being consumed by oxygen; yet oxygen does its part in accomplishing this purpose by oxidation, yet supporting life at the same time, till the end of this process which culminates in the liberation of the spirit.

If an imponderable predominates over another sufficiently to interfere with the harmony of association, death may be the consequence as occurs in death by electrocution. Any disturbance between the harmony of the potentialities and their action on the chemical interchanges going on in the body encumbers functionality and institutes disease. The incentives to disease are the excesses and indulgencies beyond the physiological limitation of functionality—taxing the powers of the body beyond their limit. All extremes of whatever nature, effect metabolic activity and so alter the potentialities presiding over chemical and physical transformations. The chemical alterations that follow produce disease. Diseases of an extraneous nature are due to other influences, but they influence the chemical changes going on in the body; infectious or contagious diseases are of this nature. The intense excitability of the potentialities in disease can be transmitted and so carry the disease. Vegetable and mineral poisons are violent in their action on the potentialities, and institute specific changes, so also do all drugs that are not compatible to body requirement.

If man depends upon food, air and water for the sustainment of life, then life must be pent up in the material taken in to sustain or continue life. In which case everything contributing as food or nutrition must contain the means for life sustaining, life giving or life producing. There must be a life producing source in order for life to appear at all in nature; what this course is, is the most momentous of all problems. It is either in or outside of nature and to be outside of nature must be supernatural.

It is the asserting of the power of continuity that causes the healing of tissue after surgical operations. This seems to indicate that there is something controlling the process outside of the material of the body which must be the continuous aggregate which we term life.

In the absence of life the substance does not manifest itself; thus life acts as a controlling power over all molecular movement in vegetable and animal matter through the agency of the potentialities. If life is not a distinct entity, the inorganic must itself have had the power to produce the organic, a thing greater than itself; the conversion of water into wine is but a simple process when compared with the fact that material forms life.

Herbert Spencer has said, that homogeneity differentiates into heterogeneity. Homogeneity may be present, in a physical sense, in common salt, because the units of common salt are of like nature throughout. This would be considered the physical explanation of homogeneity. In this case heterogeneity might continue to differentiate, as the homogeneity, in this sense spoken of by Spencer, is absolutely and really nothing but heterogeneity. But when we speak of mathematical homogeneity, the units are of like nature throughout and absolutely the same as mathematical points in their aggregation—an absolutely non-material continuity which could never differentiate into heterogeneity. Now the albuminoid approaches the mathematical homogeneity, but never reaches it. It is the nearest thing in nature by ultimate reduction, that comes to what we require as the mathematical homogeneity. If differentiation commences at all, it is in the crystalloid body. That again is composed of different kinds of matter and being composed of different kinds of matter is discreet from the beginning and continues discreet unto eternity. Life is the only entity which is unchangeable, and it is to this, as a controlling power over the potentialities acting on the matter of the ether, no matter what form it may take in its differentiation, that we must look to for aid in solving the problem of life and the overcoming or prevention of disease.

* See The Medical Times April, May and June, 1902.

INTERESTING FEATURES IN INFLUENZA.

BY M. SHELLENBERG, M.D.

TEN years ago when the pandemic of influenza restarted in its trip around the world, it was thought that its effects would be but transitory. In fact, even by the medical profession it was treated largely as a joke. The development of serious cases, followed by curious complications, terminating frequently fatally, has dispelled all of this facetiousness. Now, after an experience of some years in treating this condition, I wish to report some of my experiences and conclusions.

Undoubtedly we have always had influenzal colds, but they have been more pronounced in the past ten years. Dr. Benjamin Rush, one hundred and twenty years ago, described our recent epidemics exactly, down to the minutest symptom, so it is probably nothing new. The influenzal poison either wears itself out, or renders by repeated attack the system immune to its influences.

One phase of the disease is its effect on children, another its influence in producing psychoses. My own experience with children has been fairly large, but I will quote from Comby, whose experiences agree with mine in a far larger number of cases; this authority has studied the effects of the epidemic in children; of 218 children affected by this disease seen by him in the pandemic, 124 were girls and 94 boys. In age, they ran from seventeen days old to the oldest fifteen years; 48 were under two years of age, 76 from two to five years of age, and 94 from five to fifteen. He found that 40 per cent. of the children in Paris were affected with the disease. Outside of the general epidemic influence no particular cause could be attributed; the disease being remarkably infectious, the germs being diffused by atmospheric currents. Its contagiousness is not so clearly established, though it is probable; relapses were not infrequent; recurrences during the same epidemic were not usual. Although the pathogenic germ of the disease has not been isolated, yet in the concomitant diseases the pneumococcus was found with penumonia, the streptococcus with otorrhœa, and the staphyloccus in the vesicles of labial herpes. The principal symptoms were referable to the nervous, the digestive, and the respiratory apparatus; at the outset there was sharp headache for a day or two in the frontal region

radiating to the orbit, and accompanied with photophobia; with this there were also restlessness, insomnia, and, in a few cases, nocturnal delirium. Convulsions occurred in only three cases. Then there were pains in the back, chest, and knees, less frequently abdominal pain, gastralgia, or enteralgia. After the disappearance of the nervous prostration; muscular weakness and anæmia continued a long time. In 98 cases there was vomiting, and in 38 nausea alone; in only 18 cases was there diarrhœa, constipation being the rule; fever was constantly present, but showed no well-defined cycle, beginning with a feeling of chilliness; the pulse was regular, frequently reaching 150 to 160 per minute; the urine was red, acid, without sugar or albumin; a troublesome cough was present in a third of the cases, being usually due to pharyngitis or laryngo-tracheitis, rarely bronchial catarrh. Coryza was present in 63 cases, epistaxis in 18, epiphora in 23. There was but few cutaneous manifestations, including labial herps, urticaria, sudoral erythema, roseola, scarlatiniform erythema, and morbilliform erythema, and these in only a very small number of cases; desquamation was not seen in a single case. The complications of the respiratory were few and benign, bronchitis appearing in 18 cases, and broncho-pneumonia in only 1. In 14 cases there were ocular disturbance, including 5 cases of simple conjunctivitis, 1 of hæmorrhagic conjunctivitis, 4 of vesicular conjunctivitis, 11 of vesicular keratitis, 3 of double keratitis. In 13 cases there was otitis media. There was also 1 case of tibiotarsal arthritis, and 1 of catarrhal icterus. In general, there was an absence of grave complications in almost the entire series of cases.

No set period of incubation of the disease could be determined; the invasion being usually brusque, the febrile period averaging three days. Convalescence was usually of long duration. The following degrees of the disease were observed, which can hardly be considered as distinct forms: The attenuated form, which was seen in 26 cases, where the patient might be able to go about, but there was usually a temperature as high as 101.3° F. The average form, which was characterized by decided febrile action and intense pain; here the patients usually remained in bed from one to ten days. The grave form which was only seen in four cases, and was characterized by high fever, great prostration, delirium, restlessness, and typhoid or meningitic phenomen. In only one case did death ensue. The diagnosis was usually easy, though always it was necessary to exclude variola, rubeola, scarlatina, typhoid fever, and meningitis. For medicaments, quinine was chiefly used, with purgatives and emetics. As particular indications for other drugs arose, they were met as each case demanded. In addition, rest, light diet, and during convalescence tonic and reparative agents were used.

One word as to the use of quinine. I have found that, as a rule, practitioners give too small doses. I have found, as Manassein has pointed out, that small doses can have no effect on fever. According to this observer, quinine is longer in the system of a fever patient than in health; yet it is a well-known fact that quinine begins to be eliminated by the kidneys after ten minutes, that after twelve hours the whole dose is secreted and eliminated, and that elimination is greatest after six hours from the time the drug is taken. Therefore, small doses cannot have any effect. In typhoid fever some practitioners advise large doses at short intervals, viz., 10 to 25 grains in one hour. To overcome the pyrexia it is necessary to administer the drug six or eight hours before the rising of temperature, viz., 8 to 10 grains at ten o'clock and 10 grains at eleven o'clock in the morning. This, of course, is the adult dose.

Post-grippal psychoses, which show in the raised temperature, must have an important influence on nutrition and subsequently on functions of the brain-cells; for, we well know, that increased heat is an irritant to all nerve-tissue; Althaus and Post found that a frog's leg, artificially heated, is at first irritated, so that slight stimuli cause excessive responses, and then paralyzed, when stimulation has no longer any influence. Clinically, we see the same effect in heat-stroke and the intense hyperpyrexia of rheumatic fever, and also in such infectious fevers as the acute exanthemata. As a result of this there is increased oxidation of the uncombined albumin of the brain; and such a chemical change must lead to irritation, ending in depression. But little accurate information exists about the more intimate changes caused in the metabolism of the brain and the body by fever-heat; recent researches have thrown little light, excepting to make clear the fact that the destruction of albumin is invariably increased by fever, while the destruction of fat is rather diminished. Should the supply of unoxidized albumin in the brain be exhausted, the mental faculties must necessarily become impaired. In addition to the fever-heat there is the acceleration of cardiac action, which begins with the beginning of the fever, and which causes of itself an active cerebral hyperæmia, adding a mechanical agency to the chemical. An unduly large amount of overheated blood is supplied to the brain within a given period, thus increasing the irritation. The active hyperæmia of the brain during fever is shown by the clinical symptoms of fullness in the head, excitement, restlessness, insomnia, undue sensitiveness to light and sounds by the examination of the fundus of the eye, and the results of depletion.

Subsequently there is a failure of the heart's force, with or without a fall of temperature, and the necessary consequence of this is passive congestion in the cerebral meningeal veins, which, in its turn, leads to anæmia and impaired nutrition of the cerebral substance, and in severe cases to cerebral œdema. The corresponding clinical symptoms are light headedness, a dazed state, which may be complicated by maniacal excitement and violent delirium, possibly ending in coma and death. While, therefore, the fever-heat and the unduly violent cardiac action undoubtedly tend to cause impaired nutrition of the brain substance, there is another factor which has a more powerful influence—the presence in the blood of the toxine of the influenza, which poison affects the brain directly, as is shown by the circumstance that in "grip," as well as in some other infectious fevers—such as smallpox, typhoid, and scarlet fevers—delirium may be the first symptom noted before the temperature of the blood had risen, or the heart's action has increased.

The temperature often is insignificant, not exceeding 101° or 102°, and may continue at this rate only for a day or two, so that the case would appear almost like one of simple fever; but the prostration of

mental and bodily strength which follows is so profound as to be quite inexplicable, except on the assumption of deterioration of the nerve-centers by grippal toxine. The degree of fever may bear no relation to the degree of prostration. In syphilis, the primary symptoms may be so slight as to attract very little attention—severe secondary and tertiary manifestations may follow. The deleterious effects of this toxine do not cease with the fever; this virus is the principal agent in the causation of the psychoses which are apt to follow. Many writers believe that influenza alone is not sufficient to cause any psychoses; that it is necessary for the production of these that there should be an hereditary or acquired neurotic predisposition. Kraepelin states plainly that in the production of post-grippal psychoses there are invariably other active causes at work besides the influenza, and that the latter alone is not sufficient to cause acute insanity in a normal person; he believes that the influence of grip is altogether a factor of little importance, and that it is the predisposition or noxious agents—such as anæmia, chronic lung disease, gastric catarrh, cardiac affections, and depressing emotions which are responsible for the outbreak of insanity seen in these patients.

Again, we find, idiosyncrasy is shown in a peculiarly striking manner, by the patient's response to the action of the toxine in his system; no disease, at least no infectious illness, shows symptoms which are so extremely variable as those seen in influenza. For example, the fever does not show any such constant curve as found in typhoid and intermittent fever, but is throughout characterized by the highest degree of variability; while in one case it may last no longer than twelve hours, it is in another protracted over a fortnight. Again, the degree varies from 100° to 110°, with the greatest irregularity in morning and evening temperatures. The fever may be greater in the morning than at any other part of the day, with sudden changes within a few hours. The same holds true for other symptoms, and it is indeed the unexpected which constantly happens in influenza. Headache may form the most prominent symptom, or it may be pain in the loins, or delirium, or giddiness, or vomitting, or cough, or prostration. Idiosyncrasy is different from a special morbid tendency, and may exist in all those who otherwise are in a normal state; without our idiosyncrasies we should not be individuals, and idiosyncrasy may stay within physiological lines without being tainted by pathological tendencies. Many alienists contend that idiosyncrasy may produce these results; persons may be affected with mental disorder from the effects of the toxine without there being any neurotic tendency either in themselves or their family history. The proportion of psychoses observed after influenza is far greater than that seen after any other infectious disease. As influenza occurs rather as a pandemic than as an epidemic, we may assume that, as so many more persons suffer from grip than from other fevers, the number of mental cases is inevitably swelled; but an instant's reflection will show that such an argument is untrue. To take only one other infectious disease, it is well-known that measles affects habitually the entire population in the course of years, while grip has rarely affected more than 60 per cent. of the people, yet psychoses after measles are rare. Seeing, therefore, the far greater liability to psychoses after influenza, undoubtedly the toxine has a more prejudicial influence on the brain than other morbid poisons, which is supported by the argument showing that the toxine has a special affinity for the medulla oblongata. The first class of these maladies comprises cases of neurasthenia, hypochondriasis, and melancholia, which is the same as that seen after infectious diseases of comparatively long duration, such as typhoid or rheumatic fever; while the second class includes cases of delirium, of inanition, and analogous troubles, such as are seen after short fevers, such as pneumonia, the acute exanthemata, and the puerperal condition. We have in influenza not only cases of both these classes indiscriminately, but also such of any other form of mental disease occurring in those who are highly predisposed to them, or who have already suffered from similar affections, even including a rapid general paresis. The outlook of these cases is fairly good; many patients recover apparently permanently, a few die, and some recover temporarily. The first class comprising neurasthenia, hypochondriasis, and melancholia, seems to offer, on the whole, the best chances of recovery, the central disturbance being mostly of a comparatively slight character. The risk of the patient committing suicide when in a state of melancholia must be remembered. In the second class, comprising delirium of inanition, it is not quite so favorable, for the physical exhaustion of the patient is much greater and may lead to a fatal termination. The risk of the patients passing into a state of dementia after the period of excitement is possible. In the third class no definite prognosis can be made, as the issue depends largely on the neurotic predisposition existing in the case. Temporary recovery, however, is not rare.

In the treatment of influenza it is important to individualize as far as possible, treating the patient rather than his disease; a nourishing and easily digestible diet is always of the greatest importance, with a moderate amount of alcoholic stimulants where there is loss of appetite and physical debility. Stimulants of any kind should be prohibited in general paralysis of the insane, where they would unquestionably do harm. Avoidance of excitement, rest, and change of air and scene are among our best restoratives where the normal functions of the brain have been impaired. In the delirium of inanition and allied states, where excitement and hallucinations are prevalent, subcutaneous injections of morphine and atropine may be used with advantage. Insomnia should be combated by prolonged warm baths, and, if necessary, by the use of sulphonal and paraldehyde; anorexia by bitter tonics; general debility by quinine, strychnine, and phosphorus. Where there is cardiac debility, as shown by a feeble and rapid pulse, digitalis or strophanthus should be administered. The action of the liver and bowels must be regulated, and alteratives and aperients given as needed. Finally, the tone of the nervous centers may be much improved by the judicious application of the constant galvanic current, applied more particularly to the prefrontal lobes and the medulla oblongata.

—A singular walking fish is the perlophithalmus of the tropical Pacific shores. At ebb tide he literally walks out of the water, and, erect on two legs, promenades the beach.

THE CARE OF THE FEET FROM A MEDICAL STANDPOINT.

BY H. TAYLOR, M.D.

EVERY advance in civilization must be accompanied by a certain amount of discomfort and apparent relapse. There is no doubt that there are certain classes in the world who are worse off than they would be in a savage state; for example, the well-known writer "Jack London" had recently published a book called "The Children of the Abyss," in which he describes the condition of the poor people of London. He comes to the conclusion that they are worse off than the average Alaskan Indian who lives in a wild region, exposed to the rigors of a severe winter and who has no especial habits of industry.

The feet of civilized man has suffered, but there is no reason that the physician should neglect his patient's feet or think that such a subject is beneath his dignity. The feet of civilized people have suffered from the vagaries of fashion; the bootmaker has not been an unmixed blessing, for while the habit of the confining of the feet is a necessity in modern times, the shoemaker has not followed the dictates of common sense, but has been guided by the varying freaks of fashion. This has been particularly true in regard to women's shoes, owing to the influence of Paris on the feminine mind. It is true that in recent years, owing to the growth of athletics and physical culture, there has been an improvement in this matter—it still admits of further advances.

The most common fault in the construction of shoes is in making the anterior portion of the shoe too narrow, making its point slope forward equally from both sides, so that the tip is midway between the two margins of the posterior part of the shoe. If we will examine the natural foot which has not been distorted by fashion or misuse, we will see that the great toe is in a nearly straight line with the inner border of the foot, so that a shoe made on the ordinary plan throws the toes together in a bunch. One of the commonest troubles is the so-called "bunion," which consists of a displacement outward of the phalanges of the great toe, so that a partial dislocation takes place at the metatarso-phalangal joint and as a result the head of the metatarsal bone is left protruding on the inner side of the foot; this continued pressure produces a thickening and induration of the skin over this bony protruberance, and subsequently the devolopment of a bursa. As this condition grows worse, the phalanges of the great toe are pushed under those of the adjacent toes with the result that the internal lateral ligament of the metatarsao-phalangeal joint is lengthened and the extensor muscle is shortened. In gouty or rheumatic cases the head of the metatarsal bone may become enlarged or altered, and the articular cartilage absorbed to some extent. As a result of the condition, the elasticity of the foot is destroyed, the movements are restricted ,and much intense suffering follows.

To relieve this unfortunate state of affairs it is necessary to divide the tendon of the extensor proprius pollicis and the toe straightened, using anæsthesia. The application of a splint then keeps the toe in position; this should be worn until all inflammation and pain have disappeared.

Many devices have been reported for the prevention of this occurrence again after operation, but the best and simplest treatment is the use of a shoe with a straight inner edge having also a division between the first and second toe. Digitated stockings are also necessary. If the case is too far advanced for this treatment the only thing left to do is to excise the metatarso-phalangeal joint; as a rule, this operation is followed by excellent results.

The most universal of all human complaints, at least among civilized races, is the so-called "corn." It is not confined necessarily to the foot, but appears over any prominence of bone covered by skin which may be subjected to pressure. In technical terms a corn is "a localized thickening of the integument, the epidermis thickening at the expense of the cutis, and the fat in the neighborhood." It is usually rounded and thicker in the center, so that the corn if removed leaves a conical hollow behind, which gives rise to the popular superstition that this is the heart or seat of the corn. The corn in this condition is generally not very painful; it is not until a bursa forms under this growth that considerable pain is experienced. Curiously enough, while it is supposed that considerable pressure is required to produce this growth, it appears very quickly, even on babies' feet wearing very easy shoes. It would seem as if there was a predisposition toward this complaint. The so-called "soft corn" occurs, on the other hand, between the toes of moist feet, and have a looser, softer texture, and being more vascular, are far more sensitive. There are cases on record where serious results may follow; even curvature of the spine has been reported as a result owing to the efforts of the patient to relieve a sore foot. Again, it may interfere with exercise and business with the production of nervousness, dyspepsia, and insomnia. Again, acute cellulitis of the foot may develop from the suppuration of the bursa under the corn. Of course, the obvious indication is to get rid of the pressure which is the source of the trouble, for which purpose a modern up-to-date shoemaker ought to be able to serve. If inflammation exists, the foot must be rested and a soothing lotion, such as leadwater and laudanum applied. In actual suppuration soak the foot thoroughly in hot water, and then cut into the bursa with a circular cut, holding the knife parallel with the surface of the corn. This relieves the few drops of pus in this pocket and removes at the same time the pressure. Treat the foot with antiseptic washes for a few days and then remove the corn. In an ordinary case the corn can be painted over with glacial acid daily until the cuticle peels off nicely. For prevention of the trouble it is well to use a piece of adhesive felt around the corn, for this purpose the druggists sell circular cornplasters, but it is far better to use these plasters in the shape of a horseshoe, allowing one-fourth of the surface to be free.

This little operation which every householder expects to perform for himself may not be as simple as it looks. For example, should there be pus in the bursa, it must be opened or the inflammation will spread to other parts of the tissue and produce acute cellulitis. Again, we know that in people with advanced degeneration of their blood-vessels any operation, especially of the domestic variety may be followed by senile grangrene. The recent death of Mr. Wm. L. Elkins, following senile grangrene, was produced by the cutting of a corn.

Soft corns generally occur in feet that are bathed in perspiration all day; it is well in these cases to

use astringent washes, dusting the toes with borated talc. powder and avoiding all forms of tight impermeable shoes, such as "patent leather," so-called "water-proof shoes," "glazed shoes," etc. The use of acetic or nitric acid will cause these growths to shrivel up and drop off.

Another unfortunate condition is the "ingrowing toe nail," which is generally caused by the pressure of the outer edge of the great toe against the second toe, provoking the lateral border of the nail to grow into the adjacent skin, which first becomes tender and inflamed and then ulcerated. If the foot is left untreated granulations spring up covering in the edge of the nail. This condition can be most distressing, producing even total disability and considerable deterioration of health. The outer edge of the great toe is generally the seat of this growth, but it may attack the inner edge, or even other toes.

The prophylactic treatment of this condition is simple, being the use of proper shoes; despite this, however, there are undoubtedly many cases which show a tendency toward ingrowing toe nails. Here the use of a simple device is often sufficient to prevent this trouble. This consists in permitting the toe nail to grow a little longer than usual and then cutting it straight across. In the case of the writer this alone prevents this condition. The treatment of the condition itself depends entirely upon the extent to which the nail is affected; if the necrosis of the nail has appeared, or if it is so diseased as to be a constant source of irritation, the first indication in the treatment must be its removal. The precaution to be taken here is to insure the removal of the entire nail; particularly being careful that no fragment is left along the proximal edge. For this purpose, having placed the patient under the influence of an anæsthetic, insert the blade of a powerful pair of necrosis forceps under the nail, seeing to a certainty that all particles are included, then the second blade being closed tightly upon it the nail should be removed by moving it laterally. The granulations should then be cut away together with about a quarter inch of skin along the border of the matrix. The foot can then be dressed according to the ideas of the operator, remembering that when shoes are resumed, the toe should be kept from its fellows by a plug of felt.

Where the nail is not materially diseased such radical treatment is not necessary. In fact, here the removal of the nail will not cure the disease, for the new nail often has the faults of the old, and also from the injury done to the matrix an irregular, uneven nail results. In very mild cases it might be sufficient to pack threads of lint under the corner and edge of the nail, so that the ends of the strand lap round the ingrowing border of the nail along which boric acid should be dusted freely. When the case is more severe, and the sensitive granulation overlap the edge of the nail, Haward, surgeon to St. George's Hospital, London, recommends the following procedure, using the introduction of a piece of thin sheet-lead beneath the growing edge of the nail.

"This is done in the following manner: The patient being under the influence of an anæsthetic, the granulations and adjacent margin of skin are cut away as described when the nail was removed; then a director or a small bone spatula is thrust beneath the edge of the nail down to its root. The ingrowing edge of the nail being thus lifted slightly from its bed, a strip of thin sheet-lead is passed down between the director and the nail. One edge of the lead should project about a quarter of an inch beneath the nail, the other or free edge being turned over onto the upper surface of the toe nail, to which it is accurately moulded. The lead is then cut off to the length of the nail, iodoform dusted over the part from whence the skin has been cut, this covered with a little carbolized wool, and a strip of plaster applied to keep all in position. In many cases the patient is able to walk at once without discomfort; but in the more severe forms it is preferable to rest the foot for a few days, and until the suppuration along the margin of the nail has come to an end. Then the iodoform and wool may be discarded and the border of the nail simply powdered with boracic acid, the toe covered with a piece of kid like the finger of a glove, and a wedge-shaped piece of felt placed between the first and second toes."

In many surgical dispensaries, the plan is followed of removing half the offending nail by the use of local anæsthesia. The tourniquet is placed around the toe and cocain or eucain is injected, and then the nail is split down the middle and half is thoroughly removed. This looks like a serious operation to perform in a dispensary on an ambulant patient, but the results have been so satisfactory that I have been won over to it despite a previous prejudice.

Subungal exostosis is a condition usually affecting the great toe, but not necessarily. It is a disease that is not treated to any extent by the text-books. It consists of a bony tumor growing from the ungual surface of the last phalanx which pushes up the nail and causes great suffering. Over this tumor grows a layer of cartilage; frequently the nail is so tilted that one side grows inwardly, presenting the additional complication of an ingrowing nail. The treatment here is to remove the nail and then chisel away the exostosis. The one caution here is to remember that the growth may be sarcomatous; if this is the case, the toe must be amputated.

There is one condition of the toes which is largely overlooked by physicians, and that is the so-called "hammer toe." The first thing noticed in this condition is that there is a retraction or hyperextension of the proximal phalanx of the toe; with this there is also a flexion of the second phalanx, which throws the toe upon the ground. As a result there is undue weight thrown upon the ends of the toes; the nail is thrust upward, the skin becomes hypertrophied, and the last phalanx is extended on the second. A corn soon follows with its bursa, and it is generally for this that the patient seeks relief. Haward has had the opportunity of examining this condition in dissection and he states as follows:

"The skin at the tip of the toe shows its great hypertrophy and the thrusting upward of the nail. The first phalanx is in a state of hyperextension. The second phalanx is flexed on the first at nearly a right angle, and the ungual phalanx with its thickened skin is pushed upward, or extended on the second. The extensor tendon is shortened. The flexor follows the arch of flexion. The lateral ligaments are shortened. The plantar ligaments show no material change. Over the first interphalangeal joint is seen the thickened skin or corn, beneath which is the bursa which has been laid open to show its cavity. If a section is made, the bones, and the articular surfaces of the first

interphalangeal joint are seen to be somewhat altered in shape by the pressure of flexion. It will also be observed that the articular surface of the second interphalangeal joint is altered in a manner which shows that the ungual phalanx had been in a positlon of hyperextension."

As in other foot conditions, the treatment depends on the time the patient is seen by the physician; if early, simple division of the extensor tendon, the lateral ligaments and any contracting bands may be enough; correcting the deformity by the subsequent use of a splint and then massage for a time is enough. Severer cases must be treated acording to their indications; if necessary the toe must be amputated or an excision made of the articular end of the proximal phalanx. The causes of this curious deformity are uncertain; while it is often produced by wearing ill-shapen shoes or boots, either too narrow or too short with high heels, yet in other cases it seems to be hereditary in its nature, cases occurring even in three successive generations.

THE DIAGNOSIS, CAUSES AND TREATMENT OF DYSURIA.

BY G. R. JOHNSON, M. D.

DYSURIA is an obstruction of the flow of urine either with or without pain; no difficulty in making water is entirely free of pain; either from a sense of resistance barely amounting to discomfort, to intense intolerance with frequent and scalding micturition. This is due to alterations in the quality of the urine or to morid changes in the genito-urinary tract or to disturbances of innervation. Of course alteration in the quality of urine is the most frequent eing caused by changes in its reaction, its specific gravity, and also by the presence of abnormal products. Simple excess of acidity of urine will cause urgency and frequent micturition; the urine is apt to be scanty, frequent and irritating, showing a high degree of acidity. Other instances of dysuria arise from a highly acid condition which are often more difficult to handle, associated as they are with intense acid dyspepsia. In such cases the urine becomes extremely scanty, almost a cherry color, rarely depositing uric acid or urates, free from albumen, but highly acid, while micturition is frequent and scalding. Again, dysuria may be due to alkaline urine due to a fixed or volatile alkali not in itself enough to cause dysuria; but it seems to be caused either by the irritation of the deposited calcium phosphate in the one case, or triple phosphate in the other, while undue increase of the specific gravity, certainly causes frequency and urgency in urinating. For example, in cases with a twenty-four hours' excretion of only thirty-two ounces of urine ranging from 1025 to 1035 specific gravity, with no abnormal excess except of urea, patients have voided urine ten times a day in quantities not exceeding two or three ounces at a time with a sense of urgent haste. It is true that in cases of low specific gravity increased frequency and urgency have been noticed too, but in these cases it is hard to say whether this may not be caused by an increased flow, or to reflex irritation from the kidney. In highly acid urines, both uric acid and urates are often precipitated, frequently being the cause of the acidity from being eliminated too freely. There is a desire to pass water at once; during the passage of water there is some scalding and a sense of relief for a time, afterwards there is a feeling of heat along the urethra, which produces a new desire to pass water, while the urethral mucous membrane is often swollen, and often there is urethritis and some cystitis. Phosphaturia, which is caused by the appearance of calcium phosphate in urine, gives rise to rather a characteristic dysuria; being a heavy salt, it deposits from the urine, collecting in the bladder, at the base, so that the first portion passed is either clear or milky and passed without much irritation, while toward the end, the calcium phosphate passes as a creamy discharge with straning which Beck called "terminal" phosphates. In this phosphaturia there is an aching pain just above the pubis; while the phosphaturia arising from ammonical decomposition of the urine also produces the most intense dysuria. Oxalate of lime often mixed with uratic and phosphatic deposits aggravates the symptoms; it is frequently the sole abnormal deposit present except mucus. This salt seems to attack the prostatic urethra, while uric acid or the urates produce a general heavy burning pain along the track of the urethra, and phosphaturia causes pain at the neck of the bladder, especially noticeable at the end of the micturition, while patients with oxaluria complain of a burning pain in the region of the perineum, radiating upwards to the lower bowel. Here urination gives little comfort, for as soon as the bladder is emptied the burning pain starts once more. Sugar in the urine does not give rise to any pronounced dysuria except that caused by undue frequency of making water, owing to diuresis; but after long existence the sugar causes irritation of the urinary passages, especially around the meatus of the urethra and may produce cystitis in long continued cases.

As to albumen, blood and pus, the existence of these products in the urine does not irritate; a considerable quantity of albumen may be found in the urine without attention being drawn to abnormal mictuition. If dysuria is caused it is generally in connection with active reflex renal trouble. The same statement is true as to pus and blood; if dysuria is occasioned by these it is either owing to the passage of stringy mucopurulent masses, or from reflex irritation.

When we come to poisons, we find that cantharides and turpentine are the two which for practical purposes need be considered, as their well-known effects of producing extreme dysuria are likely to occur during their use; the susceptibility of some persons to cantharides is well established, even the application of a small blister of Spanish fly causing very severe dysuria with bloody urine. Such susceptibility may be produced with turpentine in small amounts.

We will not deal with such morbid changes in the genito-urinary tract as come under observation of the surgeon following stricture of the urethra, enlarged prostate, and stone. Simple idiopathic cystitis frequently calls for attention from the physician, either as limited to the bladder, or else the inflammation extends through the whole length of the genito-urinary tract. Old persons also appear to be more susceptible to catarrh of the bladder than those of younger years. There are some, too, of all ages who are more susceptible to vesical catarrh at all periods than others; just as some persons may be more troubled with bronchial catarrh, and others gastro-intestinal catarrh. Of all the causes of cystitis that come under observation, those following lesions of the spinal cord are the most common. There is here a special ten-

dency to ammoniacal decomposition and the formation of crystals of ammonium-magnesium phosphate which greatly aggravates the dysuria. It is debated whether such decomposition can appear in the bladder without the introduction of a specific organism by use of the catheter. There are some who hold that the peculiar secretion from the mucous membrane of the bladder furnishes the necessary ferment and culture medium; there are cases in which ammoniacal urine does occur without there being any evidence of the cause having been introduced from without. Of course this may be owing to imperfect observation, for the urines of patients suffering from spinal diseases, even when passed fresh and acid, undergo ammoniacal decomposition quickly. Urine clear when passed, with an acid reaction, becomes ammoniacal and depositing crystals of triple phosphate before the urine had become cool in the vessel.

In this spinal form the dysuria is greatly aggravated by the stringy masses of mucopus collecting in the bladder. Another form of cystitis affecting the aged, comes on very insidously; here the complaint is usually attended with some paralytic condition of the lower bowel, constipation being always a marked symptom, and the skin becomes harsh and dry, the tongue covered with a white fur, but reddened at the outside. Also severe pain may be experienced in the thigh and legs, with a papular itchy eruption affecting chiefly the abdomen and inner surfaces of the thighs. The urine becomes less and less in quantity and higher in color, running to deep brownish hue. No abnormal constituents are usually found; it seems to be merely concentrated urine; with micturition attended with much pain, excoriating the skin of the prepuce and insides of the thighs. The patient has generally a urinous odor; although these cases may run a protracted course, frequently they usher in a serious train of fatal symptoms. Another form of senile dysuria comes on more insidously; often existing before the patient becomes aware that anything is particularly the matter. Here two conditions seem to exist (a) an atonic state of the muscular coat, and (b) diminished sensibility of the mucous surface. Incontinence of urine and retention here play a double part. The bladder is always full and the slightest motion of the body causes the urine to flow.

In these cases the cavity becomes enlarged, and the power of emptying it becomes less and less, so that the amount, of residual urine is consequently constantly increasing, the sensibility of the mucous-surfaces now becomes extremely irritable, causing on the passage of the smallest quantity of urine severe pain. The effect of the back pressure upon the ureters and kidneys manifests themselves; the patient now grows extremely restless, worn out by the frequent efforts at urination, and speedily falls into a uræmic condition. The cystitis occurring in a gouty patient, often gives rise to a troublesome inflammation of the bladder, since the cause is often overlooked. The symptoms are very insidous, increased frequency of micturition, especially at night, leading to a suspicion of nephritis, but nothing abnormal is to be found in the urine, except pus, with the occasional discharge of urates. These are not constant, nor has the urine highly acid. The patients apparently do not suffer much in health, indeed are often better while the urine remains purulent; it is characterized by its tendency to rapidly disappear and reappear. Occasionally the mucous membrane of the bladder exfoliates in shreddy masses sometimes, though more rarely in its entirety. Gouty urethritis, often appears at the same time, but usually preceding extension to the bladder. This urethral discharge which very often may attain a high degree of severity in middle aged adults, suggesting gonorrhea. Diabetic patients, too, frequently suffer from urethritis and consequent cystitis. In these cases the irritation does not usually originate in the mucous surface of the genito-urinary tract, but it creeps backward from the external surfaces, the prepuce, the vulva, or labia, which have have become eczema tons. Cystitis occurring in diabetes, adds considerably to the patient's trouble, and sometimes is attended with the phenomenon known as pneumaturia; the saccharine element undergoing vinous fermentation in the bladder, and disengaging carbonic-acid gas, producing painful distention. Tubercular cystitis need not come within the scope of this paper, but we know that no form of bladder disease is attended with more constant symptoms of pain, hemorrhage, and purulent discharge.

When we study disturbances of innervation we find that these are generally reflex in character; stone in the kidney is often attended with symptoms that point to the presence of vesical calculus. Dysuria attends acute nephritis, and the nocturnal frequency of micturition associated with chronic Bright's disease. Reflex dysuria follows upon an engorgement of the lower bowel, as, in the tenesmus of dysentery, or internal hemorrhoids. Dysuria may be caused by general plethora of the pelvic vessels hard to diagnose unless there is also evidence of internal hemorrhoids. Instead of hemorrhage from the bowel free bleeding may take place from the prostatic vessels, giving rise to serious alarm and to erroneous estimates of the case. Spasm of the bladder is usually associated with dysuria, principally oxaluria; indeed scarcely a case is seen in which oxalates were not abundantly present. In the night time, colicky pains comes on above the pubes, then a violent inclination to pass water, but this only comes in small quantities, with forcing pains shooting back from the bulb of the urethra and involving the spincters and levators in a general spasm. A general reflex irritation is caused by the elimination of irritating products. Dysuria due to reflex irritation in children may be brought about by very slight causes, such as intestinal worms, or an elongated prepuce. The direct disturbances of innervation affect the sensibility of the mucous membrane and trophic changes in the muscular vesical walls; of these, the most common are found in the so-called "urinary crises" of locomotor ataxia as examples of excited sensibility; and in the involuntary incontinence of young children, who will often wet themselves in the daytime as well as at night, in spite of the most careful supervision, due to a state of anæsthesia of the urinary tract, which sends no message to the micurating centre in the brain or cord.

Paraplegic lesions of the spinal cord are followed by trophic changes, being attended by a glairy discharge of acid mucous: on the development of the specific micrococus the bladder becomes specially the seat of ammoniacal fermentation, typical in the earlier stages of acute spinal lesion, thus confirming Rees's observation. Catheterism does not cause the rapid change to ammoniacal fermentation entirely; in fact we cannot explain the causes in such cases. Possibly the ammoniacal ferment is more or less present in the urinary tract. In my experience these are the chief causes of dysuria that come under the notice of the

physician, as separated from those serious ones that engage the attention of the surgeon. Our measures of relief must depend on the diagnosis of the conditions that produce them. In the simpler forms, those depending on alterations of the quality of the urine; let us take simple acidity of the urine, with or without uric acid or uratic deposits; here the mere directing the patient to drink three ounces of distilled water every two hours is often enough. Especially in young children who are specially affected with this condition, it may be well to limit the nitrogenous diet, replacing it with milk and farinaceous foods. In the phosphaturia consequent on alkaline urine dilute hydrochloric acid with nux vomica may be sufficient; but in the more severe cases attended with wasting and general disturbance of metabolism, opium in some form is of advantage; specially if the tongue is furred in the centre and red at the edges. Dilute nitro-muriatic acid is beneficial if oxalates are found in the urinary deposit, while a meat diet should be adopted to the exclusion of all saccharine and farinaceous foods. Acute vesical catarrh, whether iodpabic or consequent on pre-existing disease, is often attended with great dysuria. Great relief may follow the application of leeches to the perineum; and if there is much febrile disturbance, five-grain doses of Dover's powder, are generally followed by good results.

In milder dysuria, especially with an acid reaction of urine, twenty drops of liquor potassæ with forty to sixty drops of tincture of henbane, given every four hours, are sufficient to abate the urgent symptoms. I believe greatly in the efficiency of henbane as a sedative for all painful affections of the urinary tract, although it has only a feeble effect on the bronchial mucous surface. Linseed poultices over the hypogastric region and between the thighs are excellent. Place the patient over a vessel filled with hot water or the chamber vessel should be half filled with hot water whenever he attempts to micturate. If full doses of henbane do not relieve the dysuria, fall back on ten-grain doses of Dover's powder given two or three times a day. Should the cystitis become chronic, if the urine is still acid, great benefit will follow the administration of the benzoates; and for this purpose I prefer the use of ammonium to the lithium salt, as the former seems to be more diuretic. Combined with this may be given strong infusions of buchu, and uva ursi. To guard against relapse, will be best met with the prolonged use of some good lithia water and balsamic remedies, of which the best is "sandal-wood oil" given in capsules. Should much atony be left, a mixture of iron with strychnine is decidedly beneficial. In the cystitis attended with ammoniacal urine do not overlook the fact that in the first stage the urine may have been highly acid, and that alkaline reaction has only been caused by the introduction of a micro-organism. Here Rees advocated the us of liquor potasse to neutralize the effect of formation of the acid mucus which he believed was secreted from the bladder in spite of the ammoniacal fermentation taking place in the urine; it should not be attempted till the activity of the ammoniacal fermentation has been considerably lessened. Differing from the cystitis met with when the urine is acid, ammoniacal cystitis is more insidious in its onset, less violent in its progress, but infinitely more difficult to eliminate and serious in its prognosis. The fermentation in the bladder may be dealt with directly by means of injections. In simple cases, I usually direct the bladder to be irrigated with about two and a half pints of dilute citric acid (ten grains to one pint), and afterwards slowly fill the bladder with some disinfecting agent, of which eucalyptus, salol, or boracic acid are the most productive of good results. This injection should be made as often as the catheter is used—two, three, more times a day; should catheterism not be required, then it is advisable to only use the injection at the time of washing out the bladder. Roberts, in a case of glycosuria with ammoniacal urine found that the casual introduction of some germs of lactic acid fermentation substituted the reaction (acid) for the ammoniacal (alkaline), and has suggested the injection of a solution of bynin, which is a malt extract, in cases of ammoniacal cystitis to develop this opposite fermentation. It has not yet been tried clinically, and many objections might be raised with respect to its continued employment.

Of internal remedies modern research with salol, and if there are no extra indications in the form of renal disease, we may safely affirm that we can arrest ammoniacal fermentation of the urine after a few doses; and in time, no doubt, aided by topical applications to the bladder, can prevent its recurrence. Boracic acid often has a highly beneficial effect, though for certainty it cannot be compared with salol; which is useful in cases of cystitis in diabetic patients, especially in those cases in whom a certain degree of pneumaturia occurs. The dysuria arising from gouty cystitis, or urethritis, must be treated on the same lines as that caused by excessive acidity, viz., the ingestion of three or more pints daily of soft water, using it in more moderate potions after recovery, to prevent a relapse. The diet should be only slightly nitrogenous and the bowels carefully regulated..

The mucous membrane of the bladder becomes the seat of excessive purulent secretion without any great degree of hyperæmia. In the chronic urethritis of females injections of nitrate of silver alone proved serviceable, though even then the complaint was very troublesome to eradicate, owing to the frequent relapses and to the thickened condition of the mucous tissues. Spasm of the bladder, the result of reflex disturbance, can only be effectually dealt with by one drug—opium, the drug with the bad reputation. It should be given in all forms of reflex vesical irritation; even in Bright's disease, if the dose is carefully adjusted, to allay the often troublesome nocturnal micturition. Here the lozenges of morphia (one-thirty-sixth grain) with ipecacuanha, which are found in the British Pharmacopœia, are serviceable, as providing us with a safe dose of morphia and permitting of its gradual increase. In senile dysuria there appears to be a failure not only of the vesical muscles, but also of innervation, while in the acute form at least there appears to be a failure of the aqueous secretion of the urine; here little can be done, but some temporary benefit following the use of twenty-drop dose of dilute nitric acid. In the chronic form our success is more gratifying, following complete and systematic catherism. The bladder should never be allowed to become distended, however frequently the catheter has to be used. As soon as the cystitis that may have been caused by the presence of residual urine, has been dealt with, begin with perchloride of iron, strychnine, and belladonna; and if treatment has not been delayed too long, these patients often regain considerable control over their bladder, and may be

able, for a time at least, to do without the frequent passage of the catheter. In these cases massage over the hypochondriac region and use of the faradic current are also excellent.

I will not speak of the dysuria occurring from injuries or diseases to the penis, or to gonorrhea, as they fall rather under the province of the surgeon than of the physician.

PROBLEMS IN SURGERY.

BY M. M'CRORY, M. D.

GYNECOLOGY is a subject which has developed so rapidly, and in so many directions, that to attempt to write a record of this progress, and at the same time accumulate a large individual experience, is a task which few men in the future will attempt; it is probable that monographs, lectures, and encyclopædias will form the future literature. It is clear that the tendency of gynecology at the present time is mainly surgical; risks of surgical measures are greater than those of medical ones, at least at the moment, but it is assumed by the profession that the gains will also be the greater. It is a great satisfaction nowadays to find a Continental authority on gynecology who is free from that narrowness and provincialism which sees no virtue beyond the border-lines of its own territory.American gynecologists have added largely to their reputation abroad. One fact which must have been remarked by any thoughtful gynecologist, is the diminished importance which uterine displacements have occupied in pelvic pathology within the past five years; or, perhaps, it would be better to say that the method of treating them has changed, and is still in process of evolution. This fact is manifested in the diminished space, relative to similar works of equal magnitude, which an author gives to the classification and treatment of these disorders, especially their treatment by pessaries. The pessary seldom cures and is frequently a great nuisance. At present there seems to be no alternative to such treatment but cutting operations. Of these there is a sufficient variety, but their very abundance is sometimes an embarrassment, and not one of them can be relied upon to give uniformly good results. Some of them need only be mentioned to call forth insuperable objections.

Turning to the sister subject of obstetrics, I have been greatly interested in a case of enormous hemorrhage during a severe long continued labor, in which the placenta was too early detached. Here Herr and Haussman used the treatment advised a short time ago by Gill for preventing death by hemorrhage. A typical case is as follows: Mrs. B., aged thirty-five, rachitic in her youth, with a contracted pelvis (true conjugate 8 to 9 cm.). She had the terrible history of five dead children, with very difficult labors. In the present labor severe hemorrhage occurred, and under the most difficult complications, including continuous hemorrhage, version and extraction were accomplished. This time also a dead child was delivered, and after the birth the mother's pulse was barely perceptible. Although repeated subcutaneous injections of camphor, ether, and internal stimulants were used, together with powerful massage of uterus, the patient sank into a complete comatose condition

As it was found that the pulse was imperceptible and the superficial veins of the arm were empty, the rectal injection of a solution of one-half per cent. of lukewarm salt water was given. About two quarts of the fluid were introduced, which was quickly absorbed; during the injection the patient's pelvis was raised. Later a syncope occurred again with vomiting, pulse absolutely imperceptible, temperature subnormal. Therefore another salt water injection was made into the rectum, which was retained. Soon after the radial pulse could be felt feebly. The following morning the general condition was improved, pulse somewhat stronger, 120 to 140 a minute, temperature 99.5° F. After the control of the anæmia the convalescence progressed rapidly. So simple a life saving method is at least worthy of a trial by clinical instructors and practitioners. It is far easier to perform than transfusion or subcutaneous injection, and it is also done far more quickly and with means at the hands of every practitioner found in any household.

The question of the total extirpation of the uterus for cancer of the cervix is one that has been fought for years by gynecologists. Many abnormal surgeons doubt whether this has been a practical advance, for example, Hofmeir questions if it has proved to be a decided advance in treatment of the disease. In support of his argument he quotes different German operators; Altenbach reports 30 per cent. of his patients free from recurrence one year after operation, Martin 41 per cent., Olshausen 47.5 per cent. at the end of two years, and Schauter 47.3 per cent. He criticises the statistics of the Munich clinic—64.4 per cent., without recurrence two years after operation—since they are the same as those claimed by Leopold in 1887. He shows the slight favor with which total extirpation is regarded in England and America, as compared with its popularity in France and Russia. The results obtained by Byrne by the use of the galvano-cautery (77 per cent. cured at the end of two years), and the combined results of Schröder's operation at the hands of Pawlik and the writer, Hofmeier believes to be far better. The statistics of high amputation by Schröder and Hofmier (45.2 per cent. free from recurrence after two years) corresponds closely with those of total extirpation, and therefore show that the radical operation offers no decided advantage over the partial operation. In both classes of cases it appears that nearly 50 per cent. of the patients in whom the diagnosis was made in the incipient stage of the disease were well two years after operation. The operation of high amputation is far less serious and practically as excellent in results.

The subject of contusions of the abdomen is an ugly one for surgeons, for so much is left in doubt. Moty divides these cases into three classes: the light, medium and grave. The first class includes contusions in which the intestines and other important organs have escaped injury; simple contusion of the mucous membrane of the intestine without lesion of the other coats; cases in which a small perforation exists without escape of intestinal contents, and followed by speedy closure from adhesion. He diagnoses the first class by the progressive disappearance of the symptoms of shock, and the absence of signs of perforation and extravasation. In the second class are those cases which show some complication—such as acute general peritonitis, rupture of

a large vessel, or of important viscera; that is to say, all those cases which require a treatment of two or three weeks. The third class embraces those in which rupture or extensive laceration of the intestine has actually occurred.

It is well that even in the mild cases the prognosis should always be guarded for one or two weeks on account of the possibility of peritonitis appearing later, either from the yielding of the bruised intestinal wall, or from infection through the muscular and serous coats, after destruction of the mucous coat. An extensive contusion of the intestine may be more dangerous than a small perforation, for example, a man received a contusion of the abdomen by being run over by a carriage, and recovered perfectly in ten days. He died a month later of pneumonia, and the autopsy revealed a small perforation of the jejunum closed by adhesion to the omentum. Cicatricial contraction and consequent stricture of the intestine sometimes follow severe contusions of the abdomen.

Moty considers that one of the most characteristic signs of perforation of the upper part of the gastro-intestinal tract is acute pain following a few seconds after the ingestion of fluids. He arrives at the following conclusions: Horse-kicks of the abdomen in many cases are apt to produce grave lesions of the intestines. These lesions are perforations produced in three ways: by rupture, by crushing, and by laceration. The diagnosis of perforation can often be established by the acute pains resulting after the injection of fluid. Large perforations are ruptures demand laparotomy and intestinal suture. This operation may be successfully performed notwithstanding the presence of peritonitis. Exploratory laparotomy —for diagnosis—is not permissible in Moty's belief. The expectant plan of treatment is indicated in case of doubt. The prognosis of contusion of the abdomen should be reserved for a month, in view of the complications which may arise. Here again the individual experience of the surgeon must be utilized, and each case decided on its merits.

A far less dangerous condition for the surgeon to handle and yet one that may cause much perplexity, is that of hemorrhoids. Many authorities, such as Thomas, are very confident that the majority of cases of haemorrhoids are entirely preventable, and that many of those even who are far advanced can be cured by medical treatment alone, although it is necessary when treating them to give due consideration to all the causes and remove them all. Among the factors which have to do the production of hæmorrhoids, each one should be considered in the treatment; these are the valveless condition of the portal veins, gravitation, obstruction owing to hepatic disease, obstruction from hepatic, cardiac, or pulmonary disease, sedentary habits, excessive eating and drinking, excessive obesity, and the too frequent use of purgatives. The patient must have a daily movement of the bowels regularly. Sponging the anus and surrounding parts with soap and cold water, is a very efficient application, thus removing acrid fluids which, during the ensuing day, irritate the skin. The diet should be regulated with a large proportion of vegetables, and a smaller proportion of meat.

When cases of hæmorrhoids are due to constipation they may sometimes be cured by attention to this alone. Sufficient exercise is of great importance; again some patients may obtain relief from a daily injection of as much water as can be retained for four or five minutes with comfort. Lukewarm water may be recommended at first, but as soon as the patient can bear it, cold may be ordered. Those who suffer from hæmorrhoids should give up taking stimulants entirely.

Among the methods of treating internal hæmorrhage are the lowering the blood-pressure and the changing character of the blood itself. It is very apparent that the amount of blood that will flow through a rent in the wall of any vessel will be greatly influenced by the total amount of blood in the system and the amount of pressure from the vessel within. Naturally the first step to take in dealing with a hæmorrhage is to cut off the supply of liquids. Ferguson recommends that in this way the amount of blood is kept down, while it becomes thicker and better fitted for forming a good firm clot in the torn or ruptured vessel. Another step in the same direction is to reduce the volume of blood by eliminating water from the system. The hypodermic injection of pilocarpine rapidly unloads the body of water and inspissates the blood left behind, lessening thereby the freedom of the flow. This would not, however, be suitable in cases of pulmonary bleeding. These purgatives that produce copious watery stools, and at the same time are not irritating or depressing, must be placed high on the list of agents we may use for the relief of the sufferer entrusted to our charge. Of these purgatives there is none so good as Epsom salt; given in saturated solution, without water, in free doses and often repeated, very free watery evacuations are produced, the amount of fluid in the vascular system is speedily lessened, and the hæmorrhage to this extent controlled. By maintaining this action for some time, the ruptured vessel has time to heal, because the pressure is largely taken off and it is put into the condition of rest, moreover the blood is thickened. It is well known that in some cases of cholera—sporadic or epidemic—when the "rice-water" stools have been very abundant, the blood becomes so reduced in colume and so inspissated as not to flow from a hole made in a large vein. In hæmorrhage due to ulceration in typhoid fever, this plan could not be had recourse to, though it might be used with advantage in the bleeding from a gastric ulcer. In the hæmorrhage, often so free, from soft and rapidly increasing uterine growth, it is specially useful if continued long enough. In severe post-partum hæmorrhage the medical attendant may try ergotin hypodermically, or hot vaginal or rectal injections, but these may fail. A belief, not quite dead, is that the uterine sinuses are closed by clots. This is quite erroneous. The uterine vessels and sinuses are interlaced by muscular fibres, and it is the contraction of these that arrests the hæmorrhage. This muscular tissue, as it were, ligates the vessels that would bleed, and so long as the contraction is good, there is no danger. For the maintenance of this tonic action of the muscular tissue in the uterus the application of heat to the lumbar portion of the spine has been found very useful. It stimulates this portion of the nervous system by bringing more blood to it. There is a greater influx of nerve energy to the uterus and contraction is brought about. It is true that the uterus seems to be very independent of the spinal cord, and labor may take place in a paraplegic. This does not, however, invalidate the fact that heat—applied to the spine by a sponge dipped into hot water —does much good in the way of rounding the uterus

into action. But when all things fail, a last resort we may tampon the uterus and vagina thoroughly with iodoform gauze, or, if this is not at hand, some cloths to which glycerine is added. The bleeding is soon arrested, the uterus begins to contract, tone in its walls is secured, and one can feel at ease that the patient is out of all immediate danger. In capital operations, such as the removal of large and vaccular tumors from the neck, the female breast, etc., the plan is simply to tie bands around the legs and arms close up to the body. This arrests the return of blood to the body, while the flow of blood into the limbs still continues. By this means a very large amount of blood in the body is rapidly collected into the four extremities and the pressure is taken off the central vessels, temporarily.

We are beginning to learn that ear diseases are among the most serious and frequent maladies to which the human being is exposed; the frequency is due to the fact that catarrhs of the upper respiratory tract invade the mucous membrane of the middle ear. A large number, therefore of chronic aural affections are caused solely by catarrhs, or other pathological conditions of those parts. Again a large proportion of aural diseases are produced by measles, scarlatina, typhoid fever, smallpox, whooping cough, influenza, syphilis, and tuberculosis. Von Troeltsch has estimated that in every three individuals in middle age, at least one has imperfect hearing in one or both ears. Among the result of aural diseases is first placed loss of hearing, which interferes with the labors and pleasures of life; occurring in childhood it renders the young child mute, and in any case interferes with its education.

Among the other discomforts are subjective noises in the ear, which are often harder to endure than actual deafness. Psychoses, in those predisposed, are often induced by tinnitus aurium, and disturbances of equilibrium are often caused by chronic ear-disease. A very accurate and concise study should be then given to the anatomy of the external, middle and internal ear, and the relation it sustains to neighboring and vital parts in the cranium. Meningitis from otitis is generally found at the base, rarely on the convexity of the brain. Its course is usually very short, last only a few days, until a fatal termination ensues.

Undoubtedly cerebral abscesses are frequently caused by chronic purulent otitis; most frequently found in the temporal lobe, and, in the cerebellum, being usually separated from the surface of the temporal bone, and the pus-nidus in the same, by a thin layer of healthy brain substance. Their presence is often disguised by the presence of meningitis. Extensive destruction of brain-substance can occur without fever or disturbances in mobility, sensibility, or intelligence. Generally, however, complaint is made at intervals of headache, combined with nausea and vomiting, which is, at first, sometimes mistaken for migraine. In abscesses of the cerebellum there is constant pain in the occiput. There may occur vertigo, unsteady gait, hectic fever, inequality in the pupils, choked discs, defective memory, and slow pulse, and sometimes aphonia. Death results either from cerebral pressure or from meningitis induced by rupture of the abscess within the cranial cavity. Perhaps the most frequent cause of death from chronic purulent otitis media is pyæmia, brought about by phlebitis of the cerebral sinus, usually of the lateral sinus. Systemic infection from a thrombus in such cases shows itself by chills, followed by sudden rise in temperature. In some cases erosion of large veins or arteries near the ear is the cause of death. In other instances cholestectomatous collections form in the tympanic cavity or in the mastoid antrum:

It is pressure from these masses upon surrounding bone that leads to atrophy and erosion of the same; thus the cranial cavity, the transverse sinus, the external auditory canal, or the labyrinth may be broken into, and meningitis, cerebral abscess, or pyæmia follow. Carcinoma and sarcoma may appear in the chronically diseased ear, the first being developed from an old otorrhœa, originating from the epithelium of the auditory canal or the drum cavity. Its duration is about a year and a half. It usually attacks those over forty years of age.

As a rule sarcoma develops generally from the dura mater or from the periosteum of the mastoid process. Its course is more rapid than that of carcinoma, being only from three to six months. It occurs more commonly in children than in adults. Hence we see that a purulent process in the ear is family physician.

Health Insurance vs. Tuberculosis. Germany, the "Medical World" informs us, has many "Health Insurance" companies. These, for a premium, agree to pay their policy holders a lump sum in the event of sickness, or else to care for them during the visitation —just as is done by various fraternities and benefit societies among ourselves. The Hanseatic Company (located probably at Hamburg or Frankfort), has gone further than this, and has achieved a colossal success. In the case of its consumptive subscribers, instead of leaving them to employ their own physicians, or adopt any method of healing they may fancy, the society has undertaken to treat them under its own immediate supervision. The results have been surprisingly encouraging. Of 1,231 consumptive patients, treated on an average of three months, and taken from factory workers, house painters, tailors, sewing girls, nursery girls, clerks, domestics, and other laboring people, 190 died, 107 were incapable of work, 847 have returned to work for periods of one to more than four years, and 87 have been untraced. We do not see it stated whether the Sanatorium or the Dispensary system was the one pursued, but presume it must have been the latter. It would appear as if companies operating the same plan as the Hanseatic, would be of greater advantage to the working people in this country than our costly tuberculosis sanatoria are at present to those who can afford to patronize them.

—Two distinguished Berlin physicians, Professors Emil Fischer and Von Mering, have discovered (Chicago Clinic) what they regard as an infallible cure for insomnia. They call it "Veronal." It has been used with remarkable results, it is said, in the large Berlin hospitals by Professor Lilienfeld, who expresses the firm conviction that no other hypnotic approaches Veronal in certainty and intensity. He administered 450 doses to sixty patients of both sexes and various ages. Each morning after the dose the patient was fresh and felt as if sleep had been wholly natural. In all of the experimental cases the heart and lungs performed their functions with the utmost exactitude

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NEW YORK, FEBRUARY, 1904.

Thine is a high and holy office. See that thou exercise it purely, not for thine own advancement, not for thine own honor, but for the glory of God, and the good of thy neighbors. Hereafter thou wilt have to give an account of it.—Hufeland.

URANIUM IN MEDICINE.

THE discovery of the wonderful agent, radium, through the study of the compounds of uranium, is likely to throw some light upon the modus operandi of this remarkable remedy.

Uranium is able to furnish the X-ray without expenditure of energy and without undergoing any apparent chemical or physical change.

From present indications, it will be safer to employ uranium therapeutically, than its much more dangerous constituent, radium, at least until more is known of it. It should be borne in mind, however, that uranium contains radium, in the proportion of one part in two thousand.

Unfortunately, uranium has not been studied with the scientific precision it should have been during the many years it has been in use by a large number of practitioners.

The salts of uranium are said to be a violent poison, which act specifically upon the hæmoglobin of the blood, affecting its oxygenating powers. They also have a profound influence upon the gastro-intestinal canal and upon the kidneys. We have repeatedly verified these claims clinically, during the last thirty years. The effect of these salts is inhibitory on amylolytic and proteolytic action, and it was with these facts in view, that the remedy was employed in cases of diabetes, interstitial nephritis, and bronchitis with copious expectoration, in which there was faulty digestion and decreased assimilative power.

The headache, restlessness, irritability, prostration, vertigo, dyspnœa and lack of normal circulation are promptly relieved.

The abnormal thirst is controlled and with it the secretion of hyper-acid urine, which was soon found to be free from sugar. It is a great comfort to be relieved from the nocturnal desire to urinate, which occurs in diabetes and in certain forms of nephritis, and when the case is suited to uranium, the effect is magical. It will not answer as a substitute for any other indicated remedy, it must have its own specific indications.

In a case of post-scarlatinal nephritis, the urine with a specific gravity of 1015. albumen one-quarter of one per cent. plus, in which there were hyaline and granular casts, considerable fat and an occasional blood globule, the result from uranium nitrate was most satisfactory, the urine becoming normal in a short space of time. In this case the night urine very much exceeded the day secretion, and this condition was changed so that the patient was not troubled at night at all. The effect upon nutrition is shown in its influence upon the assimilative powers as manifested in the skin and the mucous membrane. Chronic naso-pharyngitis with purulent acrid secretion and inclination to scabbing, shows the character of the effect upon the mucous membrane, and a white versicular eruption especially upon the hands and legs, with red areolæ which burn and itch intolerably, indicates the nature of the skin affection. The curative effect in such cases is prompt and durable. While the action upon the skin is somewhat like that produced by the X-ray, its curative effect is much milder and pleasanter and not attended in any degree with danger, as is sometimes the case with the X-ray.

The dose of ten to twenty grains three times a day, while well tolerated in some cases, is too large for long continued use. We prefer a ten per cent. solution of the nitrate, five drops three or four times a day, and from this our results have been obtained.

The drug deserves further testing as to its capabilities.

There are several cases of cancer reported cured with radium, but we are not sure of their authenticity.

PUERPERAL ECLAMPSIA AS FOUND BY THE SPECIALIST.

AMONG the various conditions which the practicing physician encounters, scarcely one demands more energy and more judgment than this form of convulsions. The possibility of its occurrence at any time clouds the prognosis of every obstetrician and adds to the terrors of child birth, which increasing civilization intensifies. The writer well remembers standing in front of a series of wonderful inventions at the Columbian World's Fair, impressed with their cleverness and utility, until he overheard the statement of an old farmer that everything has been improved except child bearing; that the one old-fashioned process left was the method of advent into this cold world. Civilization has not only not aided this process, but has actually increased its burdens.

Hirst has recently read before the Philadelphia County Medical Society a valuable paper on this subject, based on his experience in more than one hundred cases. He accepts the dictum that anything which throws extra work on the kidneys as a heavy nitrogenous diet and deficient activity of the skin and bowels, is the exciting factor. Consequently eclampsia is generally a disease of late pregnancy with a living fetus, being ten times more frequent in twin pregnancies. Yet eclampsia has been reported as

early as the second month and as late as six weeks after delivery. These cases may have been, however, simply ordinary uremic convulsions.

Women with nephritis are disposed to eclampsia, and the reason why a comparatively small percentage reach the convulsive stage is that abortion, miscarriage, premature death of the fetus, occurs frequently in these cases. Again the toxemia appears so early that artificial termination of pregnancy becomes urgent. Pregnant women with nephritis or even with an hereditary tendency in that direction, almost always need a premature termination of pregnancy. According to the experience of Hirst, the most valuable promonitory sign of eclampsia is the finding of albumin in filtered urine in considerable and increasing amounts. In these one hundred cases, only two did not show this symptom. A post mortem examination of one of these exceptions show a chronic nephritis, which had been undetected. The secretion of urea is valueless in comparison. No physician can place any dependence on this factor. It is the steady increase in albumin despite treatment which measures the gravity of the case. Casts may be present, but their frequency cannot be measured accurately and they increase with the increase of albumen and decrease with its decrease.

Of course, naturally, the preventive treatment must be based on the theory of kidney inadequacy. A milk diet, diuresis, catharsis and diaphoresis are all important. In the curative treatment, Hirst sounds a note of warning: he believes that the rapid evacuation of the uterus is not the proper treatment. It produces injury and shock, which such a patient cannot stand. Therefore Hirst directs treatment solely to the eclampsia without regard to the uterine contents, until such a degree of dilatation of the os is secured spontaneously, that delivery can be effected without violence. Cæsarian section he disapproves of and uses bougies or the Voorhees bags to induce labor slowly.

When it comes to the actual convulsions Hirst uses the normal salt injections, sweats and purgations to eliminate the poison, while he has dispensed with venesection and diuretics. The kidneys at this time are practically non-existent. As to the use of sedatives, Hirst has abandoned opium having seen death follow the administration of a dram of paregoric in a nephritic case. He used chloral instead, and for the relief of the arterial tension and spasmodic contraction of the arterioles, he prefers veratrum viride exclusively. The use of the th oid extract he has not attempted as yet. There is no doubt that the patient should be removed, if possible, to a hospital suited to obstetrical purposes; even the patient moved in actual eclampsia will do better there, and the mortality will be cut, as in Hirst's experience, from twenty-five per cent. in private practice to less than thirteen per cent., a decrease of fifty per cent.

EDITORIAL RESPONSIBILITY FOR ADVERTISEMENTS.

WE have recently noticed in one of our exchanges which makes a specialty of questions and answers, a recommendation of some proprietary preparation for dissolving cataract. It has always seemed to us that a question box might and ought to be an important department of every journal and we must confess to feeling an individual need for just such a means of obtaining information. At the same time, the desultory use of letters asking for such information rarely results in any response although a personal letter of inquiry addressed to any medical man will usually receive prompt and courteous attention. Somehow, in practice, the journals that make a special department of questions and answers do not carry much weight and their clientele shows a lamentable lack of education. At the same time, we do not personally object either to this class of journals, nor to the practice of advising the use of proprietary compounds for it must be remembered that, especially in certain parts of our country, many physicians are legally allowed to prey upon the community without an adequate medical training—to say nothing of education in general. For such men, the editorial advice which their subscription to a journal includes, and the ready-made medicines which can be dispensed in convenient and safe units of a tablet or a teaspoonful, are a valuable check and a species of life insurance for their patients.

Even granting that the therapeutic advice asked, might just as well be given in terms of official preparations or of definite chemic substances, and that the editor or manager of the journal makes money by recommending proprietary drugs, the only persons deceived by such a course, are those who cannot be reached by ordinary reasoning and who cannot think for themselves.

Still, we believe that it is going rather far to recommend a preparation for the absorption of cataract, in opposition to the general concensus of opinion of ophthalmologists. Considered abstractly, we would not claim that it will always be necessary to extract a cataract by operative means, unless the patient chooses, but we do hold, that no physician should teach, except as a matter still subjudice, and with a proper presentation of authority and experimental or clinical evidence, any dogma which is opposed to the belief of the vast majority of authorities in the particular line concerned.

In regard to the absorption of cataract, there is scarcely an oculist of any repute whatever, who does not unqualifiedly condemn such treatment, either as delaying the application of adequate means or as actually damaging the eyes. It is certainly, a priori, unlikely that a purely commercial firm should achieve a success which expert scientists and clinicians have failed to attain, yet such an occurrence is not impossible. But patients who will not submit to approved methods of treatment and who are willing to experiment with all sorts of untried methods are numerous enough so that any discovery of value, however opposed to professional prejudices, will soon receive its merited recognition. Now, to return to our text, the absorption of cataracts has been advertised to the laity for several years and has even been tried more or less openly by some few ophthalmologists of good standing. The results of treatment by quacks have also been under observation by regular ophthalmologists yet, with all these opportunities for impartial investigation the consensus of opinion of competent men is strongly unfavorable.

So far as the advertising columns are concerned, it is obviously impossible to exercise very stringent

control over the space sold in them. As in the case of original contributions, the editorial staff is not responsible for statements made by others and any attempt at too rigid surveillance would simply amount to the editor's accepting advertisements of drugs and appliances in which he himself believed and in excluding those contrary to his own individual opinions. Such a course, however, conscientiously adopted, would be absurdly unjust. In general, it seems to us that the advertising and the original columns of a medical journal should be considered as closely analogous. In the case of either, the editor should allow the greatest latitude consistent with ordinary laws of decency and honesty. Thus, while the appearance of an advertisement in a reputable journal cannot be construed as an unequivocal endorsement of the wares advertised, it certainly should mean that after reasonable investigation, the firm has been found honorable and ethical in its dealings and that its claim is not a priori absurd.

It may not be out of place to point out that readers of a journal can aid greatly in this regard and that the interests of readers, editors and honest advertisers are common to all. Obviously, the furnishing of information regarding the methods of firms is of value, but there is another way of even greater value in the long run. It is no secret that every periodical is largely supported by advertisements and that the subscription price is only a fraction of what would have to be charged if there were no advertisements. Thus, it is not only a duty but a matter of self-interest for the readers of periodicals to increase the value of advertisements in so far as he can. This means that the advertising pages should be glanced through occasionally and that, in correspondence with business firms, the fact should be noted that their advertisements in journals have been consulted. We do not ask that the "Times" be advertised by special mention, but merely that the general value of journal advertising be impressed upon business houses. Some firms prefer to mail circulars although it is obvious that postage alone costs much more than an advertisement in a journal, unless the rates of the latter are unusually high and its circulation very small. Most busy men oppose the reduction of letter postage to an equality with that for printed matter, simply because the saving of time in depositing envelopes with a one-cent stamp in the waste paper basket more than compensates for their own increased expense for outgoing mail. Most firms that deal with busy men appreciate this fact, some do not, or they underestimate the value of a physician's time. The medical profession can, and, we believe, does gradually teach the value of journal advertising and the extravagance of penny-postage advertising, by due attention to the former and by judicious and prompt use of the waste basket in the case of the latter.

THE IDEA OF THE PERSONAL EQUATION OF THE PATIENT AS A FACTOR IN SURGICAL OPERATIONS.

THE old adage that one man's meat is another man's poison applies in some force to the success in surgical operations. How often has the surgeon been puzzled by the unexpected death or recovery of a certain patient after operation. Inexplicable deaths and inexplicable recoveries occur again and again without attracting much attention in the text-books and the medical journals. At the recent meeting of the Medical Society of the State of Pennsylvania, Estes read a paper on this interesting subject which is published in the official organ of the Society in its November issue. Although Estes includes too much in his subject, making his paper practically an article on the possible dangers of anæsthesia, it scores many good points. Although there is an average vital personality which produces average results, just as there is an average mortality in life insurance tables, yet it is made up of many exceptions to the rule. There is first the slight cause, heredity, which furnishes a practically unknown field. Of course with such clean-cut cases as those of hæmophilia, this statement is not sure, but neither heredity or nationality have much force, at least in our prognoses. We know that certain patients react better from sepsis than others, but we have yet to learn that this is due to heredity. The antitoxins and cystolysius in the blood and tissues of these patients are of a superior quality, and, of course, these properties may be inherited, but we also know that the apparently most robust individual is not necessarily the most resistent to septic conditions.

The environments and habits of a patient are of value to the surgeon in his study. With what a heavy heart the operator approaches the operating table that holds the man whose excessive indulgence of appetite has poisoned his stomach and kidneys. Whiskey drinkers are hard to handle from the start of the operator, even being more difficult to anæsthetize, while they are most prone to develop post-operative nephritis, pneumonia, exhaustion, and delirium tremens. Curiously enough, many surgeons regard persons who follow exceptional lines of diet as unpleasant subjects for operations. Vegetarians do not stand the loss of blood at all well, and react poorly to saline infusions, while heavy meat eaters do not, as a rule, stand anæsthesia well.

Estes has a peculiarly poor opinion of farmers under anæsthesia; he thinks there is no class of people so given to indigestion and intestinal disturbances as farmers, while their children are poorly nourished and do not reach a fair standard until early adult life. According to Estes, city people, even of the poorer classes, have their meals better prepared and have a greater immunity to sepsis.

Of course all surgeons know that age is a great factor, extremes increasing the possibility of a bad prognosis, while sex has no especial influence except in abdominal operations, where women, as a rule, do far better than men.

The one point of criticism to be made to Estes' article is the small space given to the subject of the disposition of the patient. In operating on a despondent and anxious patient, the surgeon is handicapped. The influence of the mind over the body is startling; the older a practitioner grows, the more this fact is emphasized. It is the basis of nearly all of our medical fads, such as Christian science, faith cure, patent medicines, etc. Nervous energy counts for good or bad tremendously, but the surgeon is apt to overlook this point. For illustration, the following case may serve: A woman, suffering from vaginal and cervical tears for years, refused an op-

eration because she knew she would die under the operation. This feeling was so strong that her family physician did not force the operation upon her. Finally things grew so bad that she was operated on, but not until she had made all preparations for death and funeral. She took ether wretchedly, and was no better after the operation, although it was skilfully and completely done. Some years later, after the birth of two children, her condition again required similar operations, but by this time she had been accustomed to taking ether, having taken it to have some slight operations done. Being firmly impressed now that she could take the anæsthetic nicely, she went cheerfully to the operating table, and the operation was a brilliant success. She recovered until she was in better health than for many years, and the surgeon and her attending family physician agreed that it was the optimistic belief held by the patient that helped greatly in her subsequent recovery.

For this reason the use of all the possible refinements in anæsthesia, especially in the preliminaries, is all important. For an anæsthetizer to approach his patient as the butcher does his victim is doubly unfortunate, for it is harmful alike to the operator and the patient.

THE SEXUAL PERVERT IN RESPONSIBLE POSITIONS.

WE need not, in this connection, enter into a detailed classification of sexual perversion. Whether the abnormal sexuality is manifested toward a member of the opposite sex, but in an abnormal manner, whether it is inverted toward a member of the same sex or whether it is directed toward one's self, whether the abnormal manifestations are physical or psychic, whether the damage done is physical or mental, and whether it is inflicted directly or is due to immoral education, the crime is essentially the same. In a broad sense, any sexual gratification which is commonly recognized as immoral or in which one attempts to gild the fine gold by peculiar methods, may be considered as perverted. We recall the confession of a physician that, securing insulation by underclothing, he added to the ordinary sexual sensation that of the faradic current, and of a prominent lawyer who expatiated upon the delights of being licked by the tongue of a prostitute, from neck to feet, as if he were a calf or kitten. Intercourse during menstruation is frequently practiced and, by some, as a preference. Often, the feeling is encountered that, to heap indignities upon one's partner causes no degradation of one's self and, not so rarely as might be wished, Massochistic practices of the filthiest nature are confessed without shame.

It is questionable, how far moral probity may be insisted on in those of responsible station. Certainly, it is not long since such matters were considered to pertain only to one's own conscience, and even yet, the general sentiment seems to be that so long as no open exposure is made, the sexual morality, at least of a man, should have no bearing upon his social, professional and business standing. Very recently, we have known of a woman physician, the mistress of another physician who was a candidate for a civil service position. The position was given to another on the eligible list, not so much on account of her character, as because the position was considered to be more appropriate for a man. After all, there is an element of injustice in requiring a woman to fulfill a higher moral standard than a man, when the social consideration does not enter in.

Our attention has been called to this question of moral responsibility by a sad case in which a sadistic tutor ruined the health and practically killed one of two boys under his charge. Not to consider the ultimate moral standard which should be adopted, by society, there is something particularly nefarious in an abuse of a trust or in taking advantage of childish innocence or in combining these crimes, for sexual purposes. The Hippocratic oath states the sentiment of the medical profession in this matter, in no uncer tain terms and the same standard should be and is, tacitly, required of every clergyman, lawyer, teacher, or other person, whose professional duties and privileges afford an opportunity for taking advantage of weakness. In general terms, the principle underlying this sentiment is that, whatever may be said of ordinary sexual immorality, it is dishonorable to take advantage of opportunities conferred by the very nature of one's relations with the opposite sex.

While desiring to hold the very highest ideal of womanhood, we cannot deny the physiologic correlation of the sexes nor ignore the very obvious fact that, barring inversion of sexuality, whenever a man sins, a woman sins also. Nor can we share the popular but sentimental view that a woman is unable to appreciate her responsibility in this regard. Excepting young children and the feeble minded, we can scarcely imagine a mental state which forbids the appreciation of the social dictum which is inculcated in nearly all literature, in all social precedents and even by the attitude of those who violate such rules, as to what is required of a woman who wishes to take her normal stand in society.

In our opinion, what is needed is a more strict enforcement of the underlying principle of the duty of moral guardianship toward those who stand in the relation of dependents and more severe punishment for those who violate this principle. Perhaps this principle should be more explicitly enunciated with regard to other professions than the medical. In particular, we believe that popular opinion and the law should place childish innocence on the same high pedestal, whether the child be a girl or a boy. We have known of a number of instances in which teachers and others of mature years, have seduced boys entrusted to their care, either in the physical sense, or in the sense of giving them to understand that their purity is of no account. Even granting that a boy's or a man's virtue is without value, we cannot overlook its very direct relation to that of the girl and the woman.

One of the meanest results of the abuse of responsibility in regard to children and those liable to succumb to temptation, is the false position in which the pure minded are necessarily placed. A short time ago a man narrowly escaped lynching, on account of a perfectly innocent caress bestowed upon a little girl, and whether as professional men or individuals, we cannot but feel the restraint under which the dishonorable have placed the honorable. Even in the popular drama, the child heroine often displays a regretable precociousness in suspecting the motive behind the villain's attentions and we cannot but wonder if the real villain is quite so base or whether he

ever much we may regret it, it is a generation or two too late for the doctor, the minister or the teacher or even for the old friend to show his genuine affection by any demonstration which could be misinterpreted by the evil minded or which might arouse an unintended response in a too precocious child.

The relation of physician and patient is one which naturally leads to freedom of speech and to intimacy of feeling. We would caution all and especially the inexperienced against the tendency to unnecessary discussion of sexual matters, even in their social phase, and the expression of anything which might be misconstrued as sentimentality, with patients or those who sometimes assume that one is privileged to regard a doctor as bisexual, in regard to matters in which sexual discriminations are commonly made. It is a good plan to draw very hard and fast lines as to the times and places in which one is a doctor and those in which one is merely a man. The physician who takes advantage of his title to do and say what he could not do and say with impunity, without the M. D., is likely to find that others will take advantage of his indiscretion to disparage his professional probity. Many persons must always be either patients or friends, but not both. Many have the good sense to occupy both relations. Rare indeed, are those who can be both at the same time.

THE RED-LIGHT TREATMENT OF SMALLPOX.

THE claims advanced by Finsen of Copenhagen in behalf of his red-light treatment of smallpox, have been critically examined by Dr. J. F. Schamberg, who in the "Journal of the American Medical Association" for May 2, 1903, bases his opposition to them on the following grounds: 1. Because the treatment is called a new one. 2. Because he considers Finsen's theoretical views concerning smallpox and light to be wrong, and 3, because he is of the opinion that the red-light method is proved inefficacious, and that all good results in former experiments may have been due to other factors. It is further suggested that the cases so treated were so mild in type that they would probably have escaped suppuration without the red-light treatment. To these objections Finsen, in the same Journal for November 13, replies by, first, denying that the method he advocates is the same as the one employed in the middle ages by John of Gaddesden and others. The modern red-light treatment, he points out, is a negative procedure, its object being to prevent the chemical rays of daylight from acting injuriously on the patient—an object which might be equally well obtained by leaving him in entire darkness, or by the use of dark-yellow or dark-green curtains. Gaddesden's treatment, on the contrary, was a positive one, and consisted merely in surrounding the patient with all sorts of red things. It did not occur to him or his colleagues to shut out the light from the sick room. Their idea was that the red articles should irritate the blood just as a bull is irritated by a red cloth, thus producing a more pronounced erythema, that, is, forcing all the bad matter "to get out." The object of the modern red-light treatment is just the opposite, viz., to make the exanthema less pronounced. In the experiments made by Dr. Schamberg, on only two patients, the red-light treatment was not instituted until too late, therefore it is not surprising that suppuration occurred. Two conditions, Finsen concludes by saying, are absolutely indispensable if good results shall be obtained from the red-light treatment of smallpox, viz.: 1. The patient should be placed under treatment sufficiently early, and 2, the chemical rays of daylight should be absolutely shut out. The efficiency of the method is so certain that in case suppuration should occur in a patient who had been placed under the treatment in proper time, the first thing to be thought of is that from want of care on the part of either the patient or of the nurse daylight may have penetrated. Therefore, before the method can justly be declared a failure, the thoroughness with which it is carried out should be tested by exposing photographic plates or sensitized paper as a means of control in different places in the sick room. If these photographic surfaces show the influence of white light the technic of the treatment has been imperfect. A few of those who have applied the method have at the same time treated the patient by other remedies as well. Such a course is objectionable for scientific purposes, as it is then impossible to decide which agency is responsible for the results. In order to give the experiments decisive scientific value they should be carried out under strict control and the patient placed under the treatment in proper time.

SUCCESSFUL TREATME NT OF NEPHRITIS BY EXCLUSION OF SALT.

IN "La Presse Médicale" for June 29th, 1903, Drs. F. Vidal and A. Javal detailed the results of observations made by one of them in conjunction with M. Lemiene respecting the action of sodium chloride on the production of edema in the course of nephritis. In four cases of interstitial nephritis with arterio-sclerosis, the daily injection of 10 grammes of sodium chloride gave rise to no disturbance whatever. On the other hand, in two out of three patients suffering from epithelial nephritis, the addition of 10 grammes of sodium chloride to the diet brought on well-marked edema. The authors then studied the effects of sodium chloride in a case of epithelial nephritis during seventy-two days. By varying the quantity of the chloride injection they were able, at pleasure, to cause either an increased discharge of chlorides, or their retention—in the former case lessening, in the latter increasing the amount of fluid in the body tissues. The result of increasing the quantity of fluid in the tissues was either an increase of body weight or the production of edema. By thus increasing the watery constituents, retention of the chlorides causes profound alteration in the vital exchanges. The degree of albuminuria present is seen to vary with the oscillations of the curve which represents the retention of the chlorides. Hence it follows that in certain cases of Bright's disease common salt is a dangerous article of diet, and in order to effect a cure special attention should be directed to the quantity of salt taken with the food. The beneficial action is not hardened in crime by this attitude. But, how-

of milk is thus seen to be due to its poverty in chlorides. As regards the patient referred to, his urine at the beginning of the study contained a large quantity of albumin and there was considerable edema in the usual situations. When a strictly milk diet was adopted the edema rapidly disappeared, and the quantity of chlorides passed exceeded that injected by 3.30 grammes per diem. At the same time the quantity of albumin passed greatly diminished, falling from 15 grammes daily to 3.38 grammes. These results were obtained over and over again simply by excluding sodium chloride from the patient's dietary. Most observers are agreed that in chronic nephritis meat should not be entirely banished from the dietary, but our authors found that, contrary to the general opinion, a meat diet may be advantageously employed during the acute stages of Bright's disease, if only sodium chloride be at the same time rigidly excluded. The average quantity of sodium chloride taken per diem is 10 grammes; milk contains only 5.50 grammes in the amount usually taken daily in a milk diet, and this, the authors think, is the reason why a milk diet is so beneficial in nephritis. Milk can be rendered still more free from common salt by keeping out the 40 to 50 grains of this substance which farmers are frequently in the habit of adding to th edaily food of the cows. Meat, containing as it does but 0.10 per cent. of sodium chloride, and bread which has not been salted by the baker beyond those traces contained in the flour, are to be particularly recommended for subjects of epithelial nephritis. The conclusion arrived at by the authors is that at certain stages of nephritis the exclusion of salt from the dietary is the best form of treatment. Hence the nature of the food is of far less importance than its richness in common salt and in chlorides generally. This, if it turns out to be correct, will be of the highest importance in the management of Bright's disease—since the consensus of clinical experience speaks decidedly against one-sided alimentation in these cases, and especially against an exclusive milk diet. The above-noticed investigation should by all means be followed up.

HOW ABOUT THE HONOR OF THE MAN?

WE HAVE recently read an article in which is described a case of syphilis occurring in a young girl who would probably have been turned loose by her parents, to become a prostitute, if they had known of the nature of the disease, but who was spared this disgrace by the tact of the attendant, and who subsequently married a reputable man, free from disease, and is now a happy mother, moving in good society. We must confess that, in spite of our rejoicing at the good fortune of the girl, there is an unpleasant after taste to such an account. How about the husband? Did he marry the girl with a full knowledge of her past, and, if so, what sort of a man is he to be content with his lot, now that the first intoxication of love is over? Has he and his offspring escaped the possible effects of the early syphilis, including the affliction of late manifestations in the system of the wife, even after the contagious stage has been passed? Or is his happiness due simply to the fact that he is ignorant of the sealed charnel house in his wife's character? If he had the knowledge to enable the choice, would he accept the bliss of ignorance or would he escape from such a union at all sacrifices? What would we or you choose if we could imagine ourselves so circumstanced?

Such a case is only one phase of the problem which again and again appeals to the physician, and, indeed, to all men. In one fall we personally encountered three instances in which girls who had been impregnated refused to marry the fathers of their children, although our practice is such as would ordinarily exclude all gynaecologic and sexual conditions. We are informed also of a young woman "of excellent reputation but of no character," to quote her own language, who has for some ten years freely enjoyed the caresses of one lover at a time, but who is otherwise a most exemplary person, educated, religious, occupying a good social position and looking forward ultimately to an honorable marriage to the vows of which she should remain absolutely faithful. She is by no means a prostitute nor a mistress, holding herself above a price and having the highest sense of honor, so far as financial dependence upon her lovers is concerned. In short, she is doing precisely what a considerable number of "reputable" men do, and her reputation is safe in the hands of the men to whom she has confided herself. This is an extreme case, but those in which a woman has slipped once or twice but has recovered her social equilibrium are not especially rare. For instance, a member of the faculty of a coeducational university was consulted professionally by a woman student who was much interested in the students' religious organization and who believed herself to be pregnant by the president of the same society. Her fears proved to be groundless. Some years afterward he was entertained in another city, and in the foremost ranks of his hosts found the same woman, the wife of a prominent business man. It would be worse than useless to multiply instances of this nature. Suffice it to say that a woman's reputation is sacred to many men, even if to few women.

There are certain grades of society, not necessarily those commonly accounted humble, in which the virginity of a prospective bride is not considered of much importance, and there are not a few men who regard with equanimity the unsavory past of their wives, just as most women are practically compelled to date their husbands' allegiance from the betrothal. But the standards of most communities—and this is even more true of barbaric nations than of civilized, and it applies with almost equal force to most savage tribes—demand that the honorable wife and mother shall yield herself only to her lawful spouse, and that the claims of the latter are retroactive. Whenever a stage of development is reached in which divorce is regulated by codified law it is true that no redress can be obtained by either party for acts in the past, unless perhaps for the actual physical results of venereal disease, yet the social standard remains the same. It would require too much space to present the arguments on which this sentiment is based, but we may allude to the fact that, aside from avoidance of actual dishonesty and physical violence, custom and the law of civilized communities place many responsibilities upon a man, practically only one upon a woman— the preservation of sexual purity. Also, it may be stated that the physical and moral influence upon offspring

is far greater for the mother than for the father, and that to women has always been intrusted the guardianship of social morality.

We believe that the man who, by virtue of his professional position, or even on account of accidental opportunity, fails to guard a woman from the logical results of her weakness, does a great wrong. We believe, also, that the privilege of communication to a medical, religious or legal advisor, should be construed in the most liberal spirit, and that the patient, penitent or client, should be absolutely assured of the protection and secrecy of the one whose advice is sought. On the other hand, neither physician, priest nor lawyer, should be a party to a violation of moral or social law. He should not be called upon nor allowed to be an instrument of retributive justice for a wrong already committed; neither should he be made a party to a wrong that is in contemplation. Owing to the obligation of secrecy, there is practically nothing that the confidant can do except by moral suasion, and this is a disagreeable and, often, not only a thankless but a useless task. Still, the professional confidant should make it plain that he does not condone one of the most abominable frauds that can be perpetrated.

THE PUBLIC HEALTH.

IF Mr. Low's administration had nothing else to its credit, the conduct of the Department of Health should be sufficient to commend it to thoughtfully appreciative citizens. Under this management the death rate has reached its lowest known record. Many causes have of course contributed to this result, one of which was the cool summer, which decreased the mortality, particularly among younger children. The general health of the city is declared to have never been better, thanks to the Sanitary Department, which has made it possible. Pneumonia has been epidemic this season, and the cases have been of the most virulent type, and the greatest number of deaths occurred in the more thickly populated and crowded sections of the city. But for this circumstance the death rate would be much lower than it is. There is a remarkable decrease in the mortality from diseases influenced by unsanitary conditions. The crusade against phthisis, and the careful inspection of fruit and milk, are given as the principal causes of the great saving of life reported. To Dr. Lederle is due a lasting tribute of thankfulness, and let us hope that the good work will continue with the new administration.

Hereafter, cases of pneumonia must be reported to the Health Department, thus showing that the disease is considered infectious, and should be under public control the same as smallpox and other similar affections.

Diphtheria is prevailing to a considerable extent, but the reports show the cases to be rather milder than usual.

—The Sultan of Turkey and the Queen of Holland are the only total abstainers among European sovereigns.

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A Description of the Brains and Spinal Cords of Two Brothers Dead of Hereditary Ataxia of the Series in the Family, Described by Dr. Sanger Brown. By Lewellys F. Barker. The Decennial Publications of the University of Chicago, First Series, Vol. X., 38 pp. with three heliotype plates and forty figures. Quarto, paper, net, $2.00; postpaid, $2.08. The University of Chicago Press, Chicago, Illinois.

The article includes a detailed description of the gross and microscopic findings in the brains and spinal cords. Colored plates illustrate the lesions in the spinal cord. Numerous process-method illustrations accompany the description of the cerebrum and cerebellum.

The valuable material which forms the basis of this study and which is so rarely available, has received most pains-taking consideration and the results reported in great detail, for the benefit of those who come after. Pathologists, neurologists and those interested in the study of this subject, will find the report of service.

The Practical Care of the Baby. By Theron Wendell Kilmer, M.D., Associate Professor of Diseases of Children in the New York School of Clinical Medicine; Assistant Physician to the Out-Patient Department of the Babies' Hospital. New York; Attending Physician to the Children's Department of the West Side German Dispensary. New York. 12mo. Pages xiv.-158, with 68 illustrations. Extra cloth, $1.00, net, delivered. Philadelphia: F. A. Davis Company.

This novel, interesting and instructive little book, has been written for novices, as it should be, and both mother and nurse will find it very practical and useful. The illustrations are profuse, and show just how many important things should be done. The inexperienced mother will find the book of great service.

Organic and Physiologic Chemistry: A Manual for Students and Practitioners. By Alexius McGlannan, M.D., Associate Professor of Physiologic Chemistry, Instructor in Clinical Laboratory, College of Physicians and Surgeons, Baltimore, Md. Illustrated with nine engravings. Lea Brothers & Co., Philadelphia and New York.

The Medical Epitome Series edited by Dr. V. C. Pedersen, are of great practical value to the student and the general practitioner who wants to brush up occasionally. The questions are placed at the end of each chapter which will be preferred by some. The present manual has been done in a style facilitating comprehension and recollection. Brevity and clearness are important factors in such work, and the author has the ability required to bring these out to advantage.

How to Attract and Hold an Audience.—A Popular Treatise on the Nature, Preparation and Delivery of Public Discourse. By J. Berg Esenwein, A.M., Lit. D., Professor of the English Language and Literature in the Pennsylvania Military College. New York: Hinds & Noble, 1903. Pp. 272; 12mo. Price, $1, postpaid.

The physician will find this book useful in enabling him to meet the frequent occasions when he may

desire to express himself favorably in public. The author has tried to confine himself to the essentials necessary to enable the speaker to hold and find the way to the hearts of his audience. The book will be found useful for its purpose.

CORRESPONDENCE

WHOLESALE PHILANTHROPY.

THE time was when the church was the natural and almost the sole recipient of conscience money and of large donations or legacies, often to be regarded in the same light or at least as an expression of indebtedness to humanity at large from one whom Providence has unduly favored and who was not disposed to leave his wealth entirely to private individuals. Recently, and especially in this country, wholesale almsgiving or, perhaps it would be better to say, wholesale restitution by those who have, fairly or unfairly, gotten more than their share of worldly possessions, has very largely taken the form of donations and legacies to hospitals, institutions for the care of the more chronically dependent classes, colleges and libraries.

Without descending to the level of populism or even of advocating any of the extreme socialistic theories, we must certainly deprecate the possession of wealth by any individual beyond his reasonable power of enjoyment or the similar possession of executive control over his fellows on so large a scale as to rival the domain of nations and states. The utilization of such wealth and power in the interests of the community as a whole, and especially the disabled and the young, is conservative and commendable. Indeed, there is no social law so terrible as that "to him that hath shall be given and from him that hath not shall be taken even that he hath," and a very important function of the state and of public opinion is to check the operation of this social law, which, by the way, is stated in the Bible not to commend by divine authority the moral status of an economic tendency but merely as a metaphor applying to spiritual gifts.

The declaration by our forefathers that "all men are created free and equal" is by no means true in a literal sense, although it is the duty of every government to render all men as nearly free as possible and to lessen the equalities that inevitably exist. Different men are of different value to the community, nor can we gainsay the right, within reasonable limits, for a man to recognize the ties of kinship and affection in giving a specious value to the services of another as compared with a third. Such inequalities tend to an equilibrium within a few generations and do little harm to humanity at large. In any country it is not especially difficult to assign limits of fair requital of value of services to the community. Our sense of humanity guarantees to everyone, so far as it is practicable to reach the individual, relative freedom from gross physical suffering and an adequate food supply, whether the person in question is of any value to the community at all, or even if he is positively a foe to humanity. Approximately, every inmate of any form of benevolent, corrective or punitive institution must be supported at a minimum cost of about a dollar a day, including the maintenance of the institution itself. The worker, however humble and unskilled, deserves a wage of at least a dollar and a half a day. At the other extreme we may say that no one has a value to the community of more than a million dollars for his life time or from thirty to sixty thousand dollars a year, since this amount represents the practical maximum of human comfort for an individual and his immediate family, barring expenditures which are simply extravagant and which do not materially minister to such comfort, and barring also the exercise of ambition along lines which rightly belong to the state and not to the individual, however great or able. However conservative and removed from socialistic heresy one may be, the mere fact that one man may give away nearly a hundred million dollars, without perceptible personal sacrifice, cannot but be a source of alarm, for there are certainly other men who are diverting similar amounts of wealth from normal channels without offering tangible evidence of a realization of any responsibility to society. The possession of wealth in such enormous masses implies, as we have stated, power commensurate with that wielded by many states or even independent nations. Such wealth cannot be earned by any service, but it is due to manipulative skill which, however wonderful, serves to crush out independent executive ability of a lesser but safer degree. That our plutocrats are not despots in a practically dangerous sense is highly creditable both to themselves and to humanity at large.

The vast benevolences of some of our men of wealth are of value in a double sense—by representing a certain informal method of taxation in behalf of educational and philanthropic institutions and by calling attention to the possible danger of allowing purely private enterprises to usurp the functions and responsibility of the whole people and by enabling some estimate to be formed of the possible improvement in the average scale of living, provided human industry could be equally ably directed, and directed so that the profits would accrue to the workers themselves.

These latter problems cannot be discussed to advantage in a medical journal, but it may not be too far beyond the interests of medical men to discuss the channels into which voluntary gifts of great magnitude may be best directed. Without in any way condemning gifts to colleges, libraries, hospitals, etc., it occurs to us that perhaps too much liberality is directed toward purely educational and artistic purposes and toward the succor of those who are actually helpless. The money expended in these directions comes ultimately from the men and women who have finished their schooling, who are too busy to derive much benefit from libraries and who are being driven by overwork and worry toward the institutions so generously endowed for their relief when they are hopelessly crippled by the stress of existence. Is it not possible that too much attention is being bestowed upon preparation for the battle of life and upon the care of the wounded and not enough upon the preservation of those who are actually in the conflict?

Primary and secondary education is, in most communities, amply provided by the state and local taxation. The people cannot depend upon private philanthropy for this safeguard of the state, nor can they accept it with self-respect. Although the expense for primary and secondary education is great in the aggregate, it is so divided as to fall heavily upon no

one. So far as we can judge, our colleges and professional schools are, on the whole, fully adequate for present needs, and there is even a tendency to unnecessary extravagance in certain institutions, which does not redound to the credit of education or exemplify a democratic ideal. We would suggest that for practical utility a million dollars divided among colleges already established, and to be expended for minor needs, would accomplish more than ten million devoted to perpetuating the donor's name by establishing a new institution under an ambitious executive. In a sense, many of our professional schools need funds, but, on the whole, there is too great an overcrowding of all professions, and the real need is of concentration and condensation of effort. The same may be said of hospitals and similar institutions for the care of the sick, injured and defective. Many such institutions are conducted with interested ends in view, and a little assistance properly directed will do far more good than an unwisely generous donation, which will be used more to glorify the donor and those under whose influence he acts, than to benefit suffering humanity.

A need which is just beginning to be appreciated is that of endowing institutions for research along various scientific lines, not directly connected with teaching or with the practical application of facts to human needs in the immediate sense, whether we regard the matter from the medical or productive industrial standpoint. Such institutions are, however, by no means lacking at present, and the main requirement is now in the interest of isolated students for whom there is no place in the institutions already established or who desire to spend only part of their energies in the direction of pure research.

But, after all, the cry of suffering humanity is not for monumental gifts but for comparatively little aids, and more for lessened demands from those who control great industries than for benevolencies, or even for higher wages. As the earth's productiveness is increased less by the growth of a tree than by having two blades of grass spring up where there was only one before, so the need of the people is not statues, colleges, libraries and hospitals, so much as two telephones where there was one before, cheap access to a salubrious climate rather than a free consumptive hospital, cheap local transit, cheap coal, cheap food, rather than an endowed bed where an attempt, perhaps unsuccessful, may be made to overcome the effects of fatigue, exposure to cold and bad nutrition.

It may seem that we are emphasizing too much the material needs of the people, and that we overlook the intellectual and moral, but we believe that the great mass of the people are too harrassed by material needs to be able to enjoy the intellectual opportunities that already are awaiting them, and that the moral nature cannot be awakened in a man exhausted in the struggle for mere existence and for such additional needs as are imposed by civilized standards of life.

A. L. BENEDICT, A. M., M. D.

Buffalo, N. Y., December, 1903.

—The French Academie de Medecine has always taken the lead in matters of hygiene, and its resolutions have commanded the attention of the world. All Paris is smiling now at the discovery that in the hall occupied until recently by the Academie each new carpet needed in the century of its existence has been laid on top of its worn and dusty predecessors—ten layers in all.

THE TUBERCULOSIS INFIRMARY OF THE METROPOLITAN HOSPITAL.

In the city of New York to-day there are seven municipal institutions devoted to the treatment of consumptives. The most important of them is the Tuberculosis Infirmary of the Metropolitan Hospital, Blackwell's Island, which accommodates about 450 patients, nearly one-half of the whole number. As Dr. E. G. Rankin observes, in his lately published report of this establishment, "When we take into consideration the fact that it is estimated that there are about twenty-five thousand tuberculosis patients in the city of New York, the inadequacy of the present accommodations speaks for itself. Yet," he goes on to say, "notwithstanding an annual increase of population of over 100,000, the statistics of the Board of Health for last year show a decrease of 500 in deaths from tuberculosis in comparison to the year previous, and there is no doubt that the segregation of tuberculosis patients in the new infirmary, limited though it may be, has been no mean factor in bringing about this result." Another highly favorable circumstance is the situation of the infirmary, blending as it does isolation and convenience. Next after fresh air as a curative agent in these cases, comes super-alimentation, which is, of course, abundantly provided for. The third great requisite is therapeutics. The search for a specific germicide or antitoxin has thus far proved so completely disappointing that the question has been raised, 'Are remedies of any kind of service at all?' It may be said that none are now employed in the great majority of tuberculosis hospitals, excepting for complications or as palliatives. The drugs which have proved most useful are those which have a pathogenic standpoint and act upon the whole system, especially the nutrition. It should be borne in mind that the medical staff of the Tuberculosis Infirmary are at liberty to employ any line of treatment which holds out any hope of benefit, and this conclusion, therefore, may be presumed to be unprejudiced. Moreover, it is strongly sustained by the results of treatment of discharged patients, as tabulated in the report. The percentage of improvement was lowest among those who took no medicine whatever. All this, we are bound to acknowledge, constitutes an excellent showing for the method of treatment referred to. Should the corresponding figures in next year's report of the infirmary tell the same story as those above quoted, then there will be only one necessary inference to be drawn, and only one proper course for the official managers of the institution to pursue.

Waterproofing by Paraffin.—The rendering of textile fabrics, leather, etc., waterproof has long and justly been looked upon as a matter of considerable importance. Many means have at various times been employed for the purpose, but all, or most of them, have been found open to objection. Recently paraffin has been adopted, but if used by itself it crystallizes and separates from the fibres of the cloth—an inconvenience which is prevented by the addition of a small amount of drying oil. This mixture possesses the great advantage of rendering a fabric repellent of moisture while, at the same time, it does not prevent the passage of air through it, and it affects but little, or not at all, the most delicate colors. It is particularly advantageous to leather, which it not only renders waterproof, but more durable, and susceptible of a higher polish.

RETROSPECTIVE THERAPEUTICS

New Symptom in the Diagnosis of Arterio-Sclerosis.—Dr. S. Miraglia, of Naples, at the International Congress, Madrid, said ("Med. News"): That the immovability of the apex beat offered a symptom of importance, hitherto undescribed in the diagnosis of sclerosis of the root of the aorta. Normally the impulse lies in the fifth space, between the mammillary and parasternal lines, and migrates, in the left lateral decubitus, to a position midway between the anterior axillary line and the mammillary. Its displacement is about 3 cm. In sclerosis of the root of the aorta, this displacement may amount to 4 or 5 cm, and the impulse may appear in the axillary line beyond. The phenomenon is due to the fixation of the base of the heart, as a pivot, a firm center, around which the heart swings, and, secondly, to the elongation of the heart, which expresses the hypertrophy of the left ventricle. No other pathological condition presents this symptom in equal degree. In the "nervous heart" of the young there is, indeed, a somewhat increased displacement, but it is far less in degree. On the other hand, advanced cases of tuberculosis or marasmus also present the phenomenon, owing, probably to the decreased resistance of the lungs, but here also there is no possibility of confusing the conditions.

Hyoscine in the Treatment of Morphinism.—George E. Pettey declares ("Med. News," Feb. 28, 1903) that hyoscine occupies, when properly used, as important a place in the treatment of morphinism as does chloroform or ether in the practice of surgery. In a series of nearly 400 cases in which the writer has used this remedy, only in two or three cases has delirium or delusions of any kind been present as long as forty-eight hours after the last dose. In persons who have been treated by the methods he advocates, that is, thoro elimination of all toxic and effete material, and then the control of the acute with drawal symptoms with hyoscine, the perfect recovery of all the mental faculties has been one of the most uniform and striking features. Hyoscine cannot be considered a substitute for morphine, and there is no reason for seeking such a substitute. It is unfit for prolonged use. By the administration of hyoscine the sufferings of the days following the abrupt withdrawal of morphine are so alleviated that the patient can pass those days in comfort, and escape the nerve strain and shock necessarily attending such an ordeal.

Postural Treatment of Hemorrhoids.—G. Oeder ("Jour. of Med. and Sc.") claims that he is able to cure hemorrhoids by postural treatment alone. The principle involved is that the swellings are due to the weight of the blood column, the venous blood traversing the great distance from the rectum to the heart unsupported by valves. So that, if the anus be raised to a position above the height of the heart, the force of gravity is then toward the heart, and the congestion and pain are reduced.

The pelvis is raised by means of pillows until it is about ten inches above the heart. During an acute attack, one or two nights' rest in this position is often all that is necessary, and he says that even chronic cases can be cured by prolonged use of this posture during the sleeping hours.

For Epistaxis.—For severe nose-bleed "Canada Medical Record" says that all that is necessary to control it is to fashion, with a pair of scissors, a dry plug of prepared sponge, in size and length comparable with the little finger of a twelve-year-old boy. This should be carefully soaked in boiled water, to free it from grit, squeezed dry, and inserted its full length gently along the floor of the bleeding nostril. No styptic is necessary. The expansive pressure of the soft sponge against the bleeding side, increased by the coagulation of a few drops of blood in its interstices, will check the bleeding at once. It should be removed in twelve hours. Under no circumstances should it remain longer than twenty-four hours.

The Diagnosis of Typhoid Fever.—The difficulties that surround the diagnosis of typical enteric fever are manifold. Sooner or later the most careful practitioner is certain to find himself cast upon this particular rock lying ahead of the medical pilot. Various tubercular conditions often closely simulate typhoid fever, and should be carefully excluded from all doubtful cases. Tubercular meningitis and acute miliary tuberculosis are often extremely difficult to differentiate, more especially the latter when complicated with tuberculosis of the intestine, with attendant diarrhoea and swollen abdomen. Even the more chronic condition of tuberculosis peritonitis may resemble typhoid fever so nearly as to lead to confusion between the two affections. Perhaps the most common source of evil is to mistake enteric fever for primary pneumonia. The latter malady, when of the extreme type, may be difficult to distinguish. As a complication of enteric fever, it occurs in the later stages. The symptoms accompanying appendicitis and perityphlitis often suggest typhoid fever, but the two affections can usually be distinguished by a due consideration of the local signs and symptoms. In its early stages the bowel fever is often mistaken for influenza. Ulcerative endocarditis and pyemia are occasional pitfalls, especially when the former causes intestinal hemorrhage from embolism. The intermittent malarial fevers are sometimes very difficult to distinguish from typhoid. Unfortunately, Widal's serum test is not invariably positive in its results. It nevertheless offers valuable evidence after the seventh to the twentieth day of the fever, and should be repeated several times when results are negative. A full recognition of the risk of overlooking typhoid fever is perhaps the greatest safeguard against error that can be placed in the hands of the medical practitioner.

Salicylate of Soda in Exophthalmic Goitre.—The benefit derived from the administration of salicylate of soda in the treatment of Basedow's malady is being continually corroborated by practitioners in France. M. Chibiel, who recommended this treatment, reported lately four cases very amenable to the drug. He prescribed one drachm daily in Vichy water. The improvement was very rapid. M. Babinsky communicated to the Société de Neurologie at Paris three cases, of which two were accompanied with intense tachycardia, 120 to 140 pulsations. After a few months of the salicylate treatment, the pulsations fell to 80 and the trembling disappeared. In the third case, where the only symptom was goitre, the gland entirely disappeared at the end of three months. No other treatment was employed in any of these cases.

Tobacco Deafness.—Prof. Wyatt Wingrave reports seventeen cases of deafness which he considers to have been due to excessive tobacco smoking. He

emphasizes the following points: (1) That they were all well-marked cases of nerve deafness occurring in heavy smokers. (2) That the loss of low tones in 50 per cent. suggests an auditory equivalent for a recognized ocular lesion. (3) That there was definite scotoma in four cases and impaired sensation of vision in eight of them. (4) That the disease was symmetrical. (5) That 80 per cent. showed marked improvement on abstinence from tobacco, and this abstinence being supplemented by drug treatment, three were cured. But the habit was so strong and the will so weak that the forecast was not always encouraging.

Treatment of Tremor in Paralysis Agitans.—Dr. Von Ketly, of Budapest, advises ("Muench. Med. Woch," Nov. 15, 1903), in treating the obstinate trembling of paralysis agitans, the administration of the root of scopolia carniolica. This drug contains hyoscyamin and hyoscin, as well as scopolamin, and even if used for a long time does not cause any untoward effects. The tremor is usually rapidly and very considerably gotten under control, and in some cases may wholly disappear. The dose is 0.3 to 0.4 per diem, given in one dose in the powdered root.

Vegetarian Diet in Gout and Nephritis.—In a dietary intended for patients of this class, meat, especially of the red varieties, is excluded on account of the large amount of extractives which it contains. Vegetables are given, however, in large variety. J. W. Hall ("Berl. Klin. Woch.," 1903, No. 38: "Med. News") has shown by chemical analysis that the purin contents of the ordinary vegetables varies within large limits. White bread, rice, tapioca, lettuce, cauliflower, and potatoes come within the limits of safety, but peas, beans, onions, oats, and asparagus are among those which should be avoided. Malt liquors also show a large percentage of purin bodies and should be avoided.

Whole Milk in Infant-Feeding.—Since 1901, Dr. Oppenheimer, in the Munich Ambulatorium, has used whole milk in the feeding of infants. In spite of the unfavorable results obtained by other observers, those obtained in Munich have been good. In generalizing from an analysis of 129 of the recent Munich cases, Eleanor Fitschen (Archivs. f. Kinderheilk., vol. 37, Nos. 1 and 2; "Med. News") gives the following rules for the use of undiluted cow's milk in the feeding of both healthy and diseased children. In the case of children that have been habituated to another method of feeding, the use of whole cow's milk should be gradually introduced. In the presence of acute gastric disease, whole milk should be excluded and should be reintroduced only after the use of diluted milk. In the instances of infants suffering from acute disease like pneumonia, it is not advisable to change the nourishment if the previous method of feeding has been well borne. Children in the first ten days of life should receive diluted milk, not because this period is considered a certain contra-indication to whole milk feeding, but because it has not yet been established that whole milk during the first ten days is successful. Overfeeding should be carefully avoided. Breaking this rule results in sad, frequently fatal consequences. The following is given as an example of a successful case of feeding by this method: An infant that during the first four weeks of life, had received besides the breast-milk various forms of diluted milk, was brought to the clinic suffering from constipation. The whole milk treatment was begun gradually, the child at first receiving 300 grams milk and 400 grams water in 7 feedings, at intervals of three hours. The strength of the milk was gradually increased until at the end of fifteen days, the child received 700 grams of whole milk in 7 feedings. In the weaning of breast-fed children, the following rule should be observed: By weighing the child before and after nursing, one should determine how much milk the child has taken from the breast in one day. The following day the child is given half as much cow's milk diluted with an equal quantity of water. The dilution is gradually diminished from day to day until whole milk is attained. As regards the age at which whole milk feeding is begun, there is no substantial difference between the results in children from four weeks to three months, and in children from three to six months. The results are rather better in the younger children. In infants under four weeks the results are less satisfactory.

Errors Respecting the Acidity of Milk.—It has always hitherto been taught that cow's milk is acid, while breast-milk is alkaline, and that in order to render cow's milk more like breast-milk it is advisable to use lime water—giving it its proper alkalinity for the feeding of infants.

That this belief is erroneous and particularly misleading has been shown, as the result of a comparative study of this subject, in the light of modern chemical methods and discoveries, by Drs. Charles G. Kerley, A. H. Gieschen, and George T. Myers, at the New York Infant Asylum ("Med. Record," vol. 64, No. 6). Their conclusions are as follows:

1. Breast-milk and cow's milk are both acid.

2. The litmus paper test for milk is unreliable, because of the variation in the quality of litmus paper, and the litmus taking part in the reaction and not acting as an indicator.

3. The effect of adding lime water or bicarbonate of sodium to feedings is to retard or inhibit the formation of curds by rennet.

4. The teaching that lime water, bicarbonate of sodium or carbonate of potassium should be added to fresh milk or feedings simply because they are antacids is erroneous.

5. The addition to milk or feedings of alkalies or salts that become alkaline in solution is an empirical method of aiding digestion by preventing the formation of dense curds that would slowly leave the stomach and be difficult of digestion in the intestine.

Fruit Remedies.—A recent investigation has shown ("Charlotte Med. Jour.") that quite a number of functional diseases as well as organic changes are not only caused but greatly aggravated by gastro-intestinal disorders, also that many of these troubles are the direct results of auto-intoxication. This seems to be very marked in persons who eat large quantities of meat and who are reckless in their diet, and also in those who use spirits for their supposed tonic and nutritive effects. Rheumatism and gout are very often traceable to the toxic states caused by ferments in the stomach and intestines. In most of these gastro-intestinal troubles there is diminished alkalinity of the blood. The change of diet to fruit has produced remarkable effects in these cases.

A noted author has reported numerous cases of invalid children suffering from nightmare and ex-

cessive nervousness who were successfully treated by a fruit diet. Bread and cereals with ripe fruits were the sole remedies. In diabetes a recent author observes that fruit sugar can be taken to the amount of three ounces daily without increasing the output of sugar; whereas starchy food or sugar in the form of glucose always increases the amount of sugar eliminated. The ordinary diabetic prescription of meats, eggs, and milk, with exclusion of all vegetables containing starch, is found to be very advantageously supplemented by large quantities of fruits. They give variety to the diet and furnish the much-needed carbonaceous elements without increasing the sugar. They also diminish the gastro-intestinal decomposition, and hence take work from the kidneys, giving them better opportunity to store up sugar.

In Bright's disease the albumen is thrown off, while some of the poisons are retained. Medically, the effort is to diminish the loss of albumen and to get rid of the accumulated matters which the crippled kidneys are unable to take care of. By a fruit diet the ptomains are diminished, and more acid and water are directed toward flushing the kidneys. One author recommends giving the patient all the water he wants, together with all sorts of fruits, which increases the alkalinity of the blood, favoring oxidation of the sugar. There is evidently a great deal to be learned concerning the effects of fruit diet both in health and disease, and physicians should feel that the subject is worthy of a great deal of attention.

Sugar as Food in Fevers.—Searching for simpler means of maintaining the patient's nutrition in fever, M. Ragot (Lyon Médical, December 5, 1902; January 25, 1903; N. Y. Med. Jour.) has hit upon sugar, a substance already found by the German military surgeons to have a decided effect in overcoming fatigue. M. Ragot founds his conclusions both upon experiments on animals and upon observations on the human subject. Two cases only figure in his clinical reports, both in soldiers, one of whom had pleuropneumonia with typhoid fever, and the other bronchopneumonia. Minute tabulations of urinary examinations and elaborate mathematical calculations from the facts observed seem to establish, so far as these facts go, M. Ragot's conclusions, namely, that sugar reduces the hypertoxicity of the urine and lessens the disassimilation of albuminoid material. Cryoscopy shows that it diminishes the proportion of extractive matter in the urine. The author found that each of the two patients had no difficulty in absorbing daily a little more than three ounces of sugar dissolved in five times its weight of distilled water. It will be seen that he alleges for the feeding with sugar, not only the more or less prevention of autophagy, but also a reduction of the amount of toxines formed. These surely are highly desirable effects in cases of severe febrile diseases.

—Opposition to the slaughter of animals for their skins is one of the principles of the New York Vegetarian Society, and at a recent meeting of the society a plan was discussed to wear only boots and shoes which are made of vegetable substances. The vegetable shoe for winter wear is made of a material called "leatherine," and is said to afford an excellent protection against cold weather. The summer vegetable shoe is made of grass, and is pronounced cool and comfortable.

THE CLINIQUE

ACUTE NEPHRITIS IN CHILDREN.

It is often difficult to draw the line between acute and chronic conditions, and this does not yet deserve to be called chronic, yet it is likely to be called an exceptional case, for children in whom acute nephritis has developed generally recover; at any rate they rarely fall into the chronic condition. Acute nephritis is not an uncommon disease in children, even commoner than in adults. Acute nephritis commonly occurs in connection with some acute disease, such as scarlet fever and diphtheria; yet chronic Bright's disease in children is, on the other hand, quite rare. So we may say quite safely that the acute nephritis of childhood, has little tendency to continue into the chronic state. But there are cases in which this rule does not apply. This little boy came to the hospital with universal dropsy; even to a marked accumulation of fluid in the scrotum. Both hyaline and granular casts were found in this case, but no blood or tube casts are found at any time in the urine. The swelling continues, the scrotum is still very much swollen. Twice lately the boy has been tapped, giving a considerable quantity of fluid. No inflammation has shown itself in these parts, which is owing to the very strict cleanliness; no erythema, no impetigo.

Examination of the abdomen shows it to be much distended; considerable swelling and fluctuation being noted. Some tympany appears over the intestines, which are floating upon the surface of the fluid. In the flanks there is dulness, extending up to about the lower ribs and to the right side of them over the ascending colon; but still the dulness is greater on the right side than on the left. This may be due to some accumulation of fecal matter in the bowels; for there is no particular reason why there should be more dulness on this side than on the other. The liver dulness extends up to about an inch more than it should, cutting off the epigastric dulness, which in ascites is tympanitic, the intestines floating up. Here is a condition in which you will not obtain the tympanitic resonance in this region, even when the dropsy is much greater than it is here. The dulness being universal is not excessive over the umbilical region. When this occurs the intestines are held back so that they cannot float upward, they being back close to the spine as by a strap. It looks now as if before long the operation of paracentesis will have to be performed. The degree of albuminurea has been estimated with Esmarch's albumenometer. In testing the urine we use a solution of citric acid and picric acid, in the proportion of 10 to 20. The tube is filled up to a certain point with test fluid, and a certain amount of urine previously added, and then set aside for several hours. At the present time the urine contains two grams of the albumen to the litre. The maximum amount was three and three-fourths grams, which was on two weeks ago. The amount of albumen will depend upon the amount of urine passed; on that day when there was one gram to the litre the urine was not so copious. The boy's general condition is fair.

His treatment has been somewhat modified from time to time, as has been his diet; yet not much improvement is to be noted. As these cases are discouraging to the practitioner and the perents, they

fall into the hands of quacks frequently. There is no known remedy that will reduce the amount of albumen, be that amount great or small. The indication is to improve the condition of the kidneys, which must be slow. We will give him such articles of food easily digestible and nourishing, as will restore for the kidneys their secreting power. Iron is given as anæmia is a prominent symptom in these cases; but it has some astringent action. Basham's mixture is an old-fashioned remedy, and it is certainly a great point in the treatment of this disease not to do harm with any of the remedies which we employ. Bathing is of importance, for by it the skin is encouraged to act by stimulation of hot baths, or vapor baths; but they may be apparently without much success. Persevering in this line of treatment, designed to increase the activity of the skin, it will be of much assistance in effecting a cure. The patient is given occasional doses of saline purgatives, or the old-fashioned compound jalap powder.

This is an excellent remedy in case of ascites. The lactate of strontium in doses of 15 grains, three or four times a day, may do good in the case of adults, and it should do good in children, as it is diaphoretic, if given with some infusion, as the infusion of quassia. It will be tried in this boy's case.

The etiology of these cases is rather obscure, unless it is traceable to some previous affection, as scarlatina or diphtheria. It may be due to some exposure to cold or wet, or there may be some predisposition in the patient to renal trouble. Persistent use of irritating drugs, as turpentine and cantharides, or lead-poisoning, will of course produce it.

This case illustrates the last type of Bright's disease, that is, a chronic interstitial nephritis. There is nothing of particular interest in his history. He was admitted complaining of a severe headache of obscure type. He has been a waiter, and lived the rather free life of that class. He always was very stout, but fortunately much of this superfluous flesh was lost. There is a muddy color of the conjunctiva but no marked physical signs, except the severe headache and the tendency to dyspnea. The specific gravity of the urine is 1022. Microscopic examination shows the presence of hyaline casts, epithelial casts and some others. Examination of the eyes disclosed gray atrophy of the temporal half of each eye. The heart showed the usual accentuation of the second sound. With the hot bath treatment the headache, for which he was admitted, disappeared, and he left the hospital. In a short time, however, there was a recurrence of the symptoms, necessitating his return. A slight albumenuria was now found, and the specific gravity of the urine was 1010. This is a characteristic of interstitial nephritis. It is this class of cases which suddenly drop in the street from uremia. Such convulsions are at times preceded by drowsiness and muscular twitchings. The nervous symptoms are the ones most to be dreaded in such cases as this. There may be insomnia, cerebral apoplexy and hemiplegia may suddenly occur, and the paralysis last until death. Of the amblyopia seen in this case, I have already spoken.Deafness is not uncommon. The consideration of other of the characteristics I have not the time to take up. The treatment is of the same general nature as in the previous disease. Noxious substances entering into the etology of the disease must be withdrawn. The hygienic treatment must embrace a regulation of habits and modes of life. I will place this man upon a bland, unirritating, nutritious diet. A diet of milk alone is advisable when gastric irritation is present, but this must not be long continued, since it would produce too much weakness. I will prescribe a light, nourishing diet, including lean meat once a day. The patient must avoid extremes of mental or bodily exercise. A change of climate would be beneficial. His bowels must be kept free by the aid of laxative waters. Digestives and bitter tonics I find to be of great use. Uremic complication should be treated by free diaphoresis and catharsis. In convulsions, severe headaches, and dyspnea, the inhalation of amylnitrite or chloroform is useful. Low tension with cardiac dilatation, indicates the use of digitalis, combined either with the nitrate of strychnia or with caffein citrate. Calomel and the salines should be used for the edema. The treatment must be not so much of the cause of the disease, for that is incurable, but of the person himself and prophylanis is after all the most important medicinal measure.

DISLOCATION OF THE LONG TENDON OF BICEPS.

Our patient is a man of fifty-nine, who two months ago fell from a ladder. He caught the ladder with his right hand and the whole weight of the body swung round on that arm. The arm is practically useless now and the man complains of pain at three points: Over the acromion, at the middle third of the humerus anteriorly, and in the axillary fold. A skiagraph was taken and at the end of the clavicle, which is a little higher than normal, are two dots which may be fragments of bone or ossification in a possible callous. When the biceps is contracted the two bellies are distinct and the outer belly shows a short, sharp curve. We do not know that the tendon is displaced or torn loose from the belly. It is an obscure case in which it is impossible to make a diagnosis, but as the arm is now useless we will make an incision for the purpose of diagnosis.

An incision shows the clavicle to be uninjured and that there is no fracture of the neck of the scapula. Going through the deltoid the long tendon of the biceps is found to be dislocated internal to the groove and lying over the lesser tuberosity of the humerus. Before replacing it I shall gouge out a deeper groove in the bone for it and then unite the capsule as best I can. To prevent adhesions being formed between the tendon and the bone I shall slip between them a piece of silver foil. The arm will be dressed in extension at right angles to the body and the humerus rotated inward.

This case shows the great value of an exploratory incision for the purpose of diagnosis and also the fact that in these days of surgery we dare make it. The same is true of other regions of the body. When in doubt as to carcinoma of the stomach, for instance, cut down upon it and thus settle the question.

HYDROCELE OF NECK.

This man is a weaver, thirty-three years of age. Sixteen months ago he noticed a tumor on the right side of his neck, which was ovoidal, soft and movable. This gradually enlarged and five months ago was diagnosed as a cold abscess and an attempt made to open it. No pus was found and the operator closed up the wound, probably without finding the sac at all. This illustrates the fact that an incision ought never be made through the skin unless the operator be prepared to go on and complete the operation, whatever he may find, if operation be

indicated. This man has thus been subjected to two operations, when one should have sufficed.

The tumor now is about four by three and one-half inches, and interferes to some extent with the voice and respiration. These cysts are frequently congenital and I have a suspicion that they are due to the blocking of the right lymphatic duct in some way.

The sac should be dissected out entire, if possible, but if rupture occurs, paraffin may be injected and thus aid in the extraction of the sac. I generally find it sufficient in such cases, however, to pack the cavity with gauze, which thus outlines the sac. In this case it comes out entire and on opening it a fluid looking like pus exudes. This will be examined to see if it really is pus. Infection might have taken place as a result of the first operation.

THE TREATMENT OF CLUB-FOOT.

The treatment of club-foot should always begin at birth. It consists first in applying bandages in the same way that Hippocrates applied them, bringing the bandage around the foot in such a direction that it will pull it into the correct position. Then in addition to this, you may use splints of pasteboard, steel splints, those made of wood or rubber, tin splints—anything, so that they are applied early. The foot should be manipulated, these manipulations also commencing at birth.

If the child has not had this early treatment, you must use apparatus for holding the foot in position. There are a number of different kinds of apparatus, but this one (Shaffer's) is the best. Now in applying it, you always put it on in the deformed position; then the keys are applied and the foot is thrown over, The greatest difficulty in applying it is in throwing down the heel. In order to do this, the foot is securely fastened in bandages, and then the key forces the heel down, down, stretching the plantar fascia.

If there is not great improvement in one year of this treatment you will have to resort to operations. These consist mainly in cutting tendons first, the tendo Achilles last of all. Bone operations should not be resorted to until six or ten years after. They are always serious and should be deferred. The best bone operation is the removal of the astragalus. After that comes the removal of a wedge-shaped piece on the outside of the foot. The disadvantage of these operations is that they make the foot shorter. Sometimes a section is made through the sole of the foot.

Any case of club-foot can be overcome and cured by operation. The difficulty with most of these cases is that they take off the apparatus too soon, or else there is not enough manipulation.

Restoration of Sight in One Born Blind. Dr. Maitland Ramsey records in the "Lancet" of May 10th, a remarkable case of a man aged 30, blind from birth, who had his sight restored to him after an operation at the Glasgow Ophthalmic Institute on February 24th, 1903. The patient was one of a family of seven, and one sister as well as himself was born blind, while another lost her sight when she was two years old. The sister who was born blind was brought up in the blind asylum, but Dr. Ramsay's patient had been allowed to run about without any attempt to educate him having ever been made. He became, however, so familiar with the country district in which he resided that he was able to go fearlessly about, and his hearing was so acute that he had no difficulty in keeping himself out of danger. He seemed to perceive any object that came in his way, and was able to avoid it. He could tell a wall from a hedge by the sound of the air coming through the leaves and branches of the latter. In a strange place he could not trust himself to go about without a guide, but in his native village where he was familiar with his surroundings he could, guided by the resonance of his footsteps, find his way to any house. Experience taught him to distinguish different flowers in the garden in which he worked, partly by touch, but mostly by smell, and he learned to gather them, arrange them in bunches, and pack them in boxes for the market with great accuracy. He recognized the presence of strangers chiefly by the sense of hearing, and was able to discriminate persons whom he knew by the sound of their breathing. When he worked in the harvest field he could bind the sheaves of grain and arrange them in stacks as well as any of his neighbor laborers. He was employed in the winter to feed cattle, and his sense of hearing guided him so unerringly that he had no difficulty in carrying food to the troughs in the cows' stalls. His eyes were small and deeply sunk. They moved continuously in their sockets, and there was a pronounced alternating convergent strabosmus. Both lenses were completely cataractous. The patient was unable to distinguish objects, but could tell day from night, and could distinguish a light and locate it accurately. For about ten days after the operation the patient was dazed and unable to interpret what he saw. The first thing he accurately perceived was the face of the house surgeon, the meaning of which he came to realize by recalling what he knew from having felt his own. He was ignorant of color, but quickly learned to distinguish hues, that which took him longest to master being green, while the first and most readily discriminated was red. He quickly learned the letters of the alphabet. From the first he saw everything in its actual position, a fact which Dr. Ramsey looks upon as proving that the retinal inversion of a picture is interpreted psychically without education. Judgment as to distance constituted his greatest trouble. The functional activity of the optic nerves after removal of the cataractous lenses was a very prominent feature, and was in striking contrast to the incessant and purposeless muscular movements. It will be interesting to know whether eventually visual perceptions become entirely normal, and whether the ocular muscles acquire the power of controllable and coordinated action.

Some Mistakes We Have Inherited. Says M. T. Knapp ("Med. Rec."): Our inherited beliefs regarding the following subjects are in error: (1) Vomiting, (2) Appetite, (3) The eating of stale bread, and (4) the expediency of eating sugars and fruit for their laxative effect. The writer considers that: 1. There is no such thing as reflex vomiting. Vomiting is always due to spasm either of the stomach or of the intestines, and this spasm is, in turn, always due to irritating material which acts directly upon the mucous lining. Green vomit is due to the presence of green mold, and not to bile. Bile may be present, but bile is yellow, and not green. Chocolate-brown colored vomit is most often due to red mold. One must never assume the presence of blood; one should prove its presence if it is suspected. 2. Appetite is the sensation produced by a contracted stomach. When the

stomach relaxes appetite vanishes. 3. Stale bread is not more easily digested than fresh bread. Clinical experience is misleading. It is the quantity that makes the difference. Fresh bread is more palatable than stale bread; hence more of it is eaten at a time. Bulk for bulk, there is no difference in the digestibility of stale and fresh bread. 4. Sugars and fruit certainly do move the bowels. It is because they ferment and decompose and so give rise to irritating products. In small quantities they may be good, in large quantities they are absolutely dangerous.

Milk Serum as a Medicine. Monsieur Blondel of Paris, ("Hoard's Dairyman") read before the Medical Congress of Madrid an exceedingly interesting article on the physiological and therapeutic properties of a serum made from milk. The results of Monsieur Blondel's conclusions were reached through numerous cases in diverse infectious diseases mostly taken from among the severe ones, in which the proportion of cures obtained showed the great value of the remedy. Under its influence the appetite became sharper, and the general condition was much improved. There was a notable increase of urea, uric acid, and phosphates in the urine. As the serum has a marked action on the nutrition by hastening the process of the oxidation and disassimilation it is particularly indicated against gout. Administered the day following the attack of this disease it caused a new crisis within twenty-four hours with an enormous discharge of uric acid. The immediate effect of the subcutaneous injection of milk serum is the lessening of the pressure of the blood; on this account Monsieur Blondel found it specially indicated in sufferers from arteriosclerosis, whose stiff, friable blood vessels threatened rupture. Its application should be progressive to avoid syncope. In 30 patients in the Hospital de Pitie, the serum administered to subjects suffering from various infections and with temperatures varying from 30 degrees to 31 degrees Cent. produced a lowering temperature which never failed. In pneumonia, typhoid fever and puerperal fever there was a marked lowering of temperature.

The serum is obtained by the rapid coagulation of milk at 30 degrees Cent. by means of an acid, neutralization by soda, and filtering by the Chamberland Porcelaine Bougie.

The Odor of the White Race.—It may not be generally known ("Atlanta Journal-Record of Medicine") that the European races have an odor as peculiar and as characteristic as that of the African. Though to themselves not perceptible, to non-Europeans it is as conspicuous as that of the negro is to us. A Japanese, Buntaro Arachi, writing in "Globus," describes his impressions of it ("Das Geruch der Europäer"). The odor of the European is generally known in Japan. To the Japanese this odor, especially that of the young European women, is very striking. It is pungent and rancid, differing somewhat with the individual, sometimes sweetish or bitter. The odor is often so strong that the room is filled with it. It is closely connected with the age of the person. Children and old people do not smell, or smell less than those of stronger age. It may easily be believed that the European is not aware of his odor, or at least is less aware of it than the Japanese. As a rule, men find the odor of women and their environment more agreeable than their own. When the Japanese has resided for some time in Europe he finds the odor of the women of the country at first disagreeable; after a time, however, it becomes less so, and finally may even be agreeable. In the writer's opinion the odor is undoubtedly dependent upon sexual activity. The odor proceeds from the axillary spaces, which are so hairy that, except in nearly scentless individuals, thorough washing with soap does not remove it, and if it does so it rapidly returns. The odorous material originates from the sweat glands; in regard to the axillary odor being associated with the sexual function, it may be remembered that in certain animals during the rutting season the function of the odoriferous glands is unusually active.

Utilization of Putrid Meat.—Putrid meat is utilized in France, where nothing is allowed to go to waste, in a highly ingenious manner. Meat unfit for food and the bodies of animals that have died of disease are extensively used for the manufacture of super phosphates. The meat is placed in a vat containing sulphuric acid, which separates the resulting nitrogenous product from the fat. The dead animals are thrown whole into covered lead-lined vats full of sulphuric acid. If these animals have died of anthrax or glanders they are cut up before being thrown in. In the course of forty-eight hours the fat alone remains, and the animalized sulphuric acid, rich in nitrogenous spubstances, is drawn off and sent through an underground conduit to the superphosphate factory. Thus, instead of the unsanitary method of burying such putrid substances in the ground, they are effectually disposed of, all injurious germs being completely destroyed; and there results a product available in the manufacture of a valuable fertilizer.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN OBSTETRICS.

1. Give an anatomic description of the uterus, including the arrangement of its muscular fibres.
2. Describe physiologically the impregnation of the ovum.
3. Mention the average duration of pregnancy and state the methods by which the date of labor may be prognosticated.
4. Give the causes, symptoms and treatment of asphyxia neonatorum.
5. Give the treatment of the pernicious vomiting of pregnancy.
6. Under what conditions is version indicated? What methods are used in the operation.
7. Describe the knee-chest posture and mention some of the reasons for its employment.
8. How should a woman in the puerperal state be catheterized?
9. Describe in detail the delivery of the placenta according to the method of Credé.
10. Describe and differentiate hydrosalpinx, pyosalpinx, hematosalpinx.
11. Give the approximate length of the fetus at the sixth, the seventh, the eighth, and the ninth calendar month of gestation.
12. Give the management of a case of rigidity of the os uteri during labor.
13. State when obstetric anæsthesia is admissible. How should the anæsthetic be administered?
14. How may laceration of the cervix be recognized and how should it be treated?
15. Mention the dangers of puerperal sepsis and give its prophylactic treatment.

MISCELLANY

—In feeding a patient by the rectum it is a good plan to press rather firmly upon the anus for some time, say a quarter of an hour or more, after the injection.

—Health Officer Freidrich, of Cleveland, has sent the following communication to every milk peddler in Cleveland: "In order to prevent the spread of contagious diseases, the Board of Health has to insist that every milk dealer use sanitary milk tickets, which are handled by milk buyers only once and are strictly non-circulatory. Unless they comply with this order at once," says Dr. Freidrich, "we will withdraw their licenses."

—The oleomargarine manufacturers have discovered a means of coloring their product which defies chemical detection. As the presence of added coloring matter cannot be demonstrated, this imitation of butter must be passed by the revenue officers at the minimum tax of one-quarter of a cent a pound. The tax on artificially colored oleomargarine is ten cents a pound, and the saving is said to have led to a great increase in the output of oleomargarine colored to resemble butter.

—A man was examined as to his sanity before being admitted to one of the State institutions and had gone through the interrogations of the physicians pretty well, when he interrupted with the question: "Are you a piece of toast?" The doctor was a bit taken aback. He denied the soft impeachment, but the man was persistent. He wanted a piece of toast. "What do you want it for?" he was finally asked. "I'm a poached egg," he said, "and I want to sit down."

—The Jenner Institute of Preventive Medicine in London, is henceforth to be known as the Lister Institute. This change of a patronage is not due to any decay in the fervor of the Jennerian cult. The reason is that another Jenner Institute, which is a purely commercial concern, whose business is the manufacture of vaccine lymph, has been in existence for some years as the Institute of Preventive Medicine, also, and occasional conflict between the two establishments. London now has a Lister as Paris has a Pasteur Institute. The Lister Institute is well endowed, thanks to the munificence of Lord Iveagh, who two or three years ago gave it $1,250,000.

—According to the "Dominion Medical Monthly" for June, the French Codex states that a spoon is full when the liquid it contains comes up to, but does not show a curve above, the upper edge or rim of the bowl. The Philadelphia College of Pharmacy has recently resolved upon promulgating this definition and has been endorsed by the American Pharmaceutical Association. The equivalents with the metric system of weights and measures are as follows: one spoonful, 5 cubic centimetres; one dessertspoonful, 10 cubic centimeters; one tablespoonful, 3 teaspoonfuls, or 15 cubic centimetres.

—Mr. Jonathan Hutchinson was recently complimented with a dinner on his seventy-fifth birthday, by the members of the profession. In a speech on this occasion he quoted with approval the view of a Swedish writer as to the distinction between fame and immortality. Fame consisted merely in having one's name known and diffused about, but immortality consisted in having one's work taken up and carried on by one's fellows, though one's own name might be forgotten.

—Stephen Kenko, a Slav, of Cleveland, on a charge of illegal practice of surgery, was fined $200 and costs, and given one year in the Cleveland workhouse. The operation was "bleeding for fever," which resulted in the patient's death.

—The need of a dark room in photography is obviated by Dr. Hezekiel, of Berlin, by the use of a reddish colored solution. Immersion of the plates in this for two minutes renders the film impervious to light, after which the developing can be done in broad daylight.

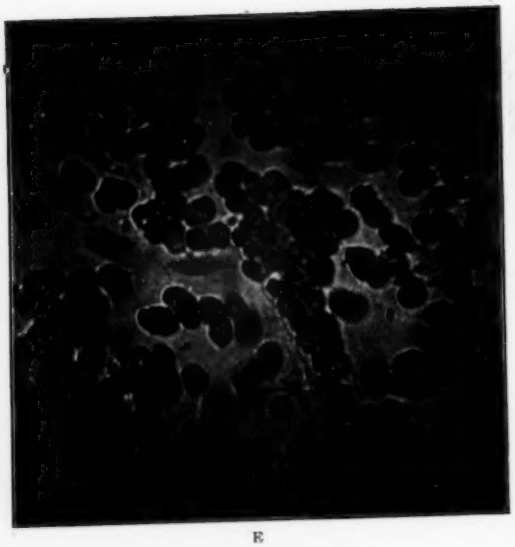
—The biography of Sir Henry Acland, the distinguished Oxford physician, contains a definition which is confirmed by the history of Darwin and many other intellectual workers. "I must tell you," he wrote to his mother, "my notion of an invalid: one who is obliged to conform to certain rules and habits, and because he does so is able silently and unobserved to do more than most people in health, who are less observant in method."

—The report of Müller's orphanage at Bristol, England, has just been issued, and shows that the institution has now entered on its seventieth year ot existence. During 1902 the sum of 37,013 pounds was received for the orphans, and 4,778 pounds for other work in connection with the institution. Five years have now passed since George Müller died, and there has been no sort of organized or direct appeal to the public or any individual for subscriptions, and yet every agency has been efficiently maintained.

—The new buildings of the Harvard Medical School and affiliated hospitals, situated in a lot containing twenty-six acres, are well under way, and are being built of white Vermont marble with pink granite foundations, and when finished, will constitute the finest buildings of their kind in the world. The extension of the laboratory method of instruction in this institution, demands increased room, and the scheme has been carefully worked out, with this end in view. It is expected that the new buildings will be ready for occupancy in the fall of 1905.

—An electric current accident, as shocking as it was remarkable, is reported from Turin, which is entirely dependent on electricity both for its public lighting and for the city tramway service. An electrician named Berti, in charge of a distributing station, carelessly let his two hands come in contact with an interrupter, thus establishing a short circuit, which enveloped his whole body in flames, and literally roasted him alive. Another electrician, running to his aid, cut the wires, and was himself involved in flames, but not fatally. The accident happened in the evening, and the city was plunged into darkness and the tramway service entirely stopped for three hours.

—Dr. Saram R. Ellison, of 118 West 103d street, has arranged to bequeath his remarkable library of works on magic to the library of Columbia University. The collection consists of some twelve hundred books relating to every phase of black and white magic, from the superstitious performances of necromancers of the middle ages to the latest scientific marvels of Maskelyne and Kellar. Several scrapbooks in the collection are made up of clippings from magazines revealing magical secrets that have not been published elsewhere. Dr. Ellison has received assurances from the college librarian that the collection will not be broken up, but will be placed on the shelves in its integrity.



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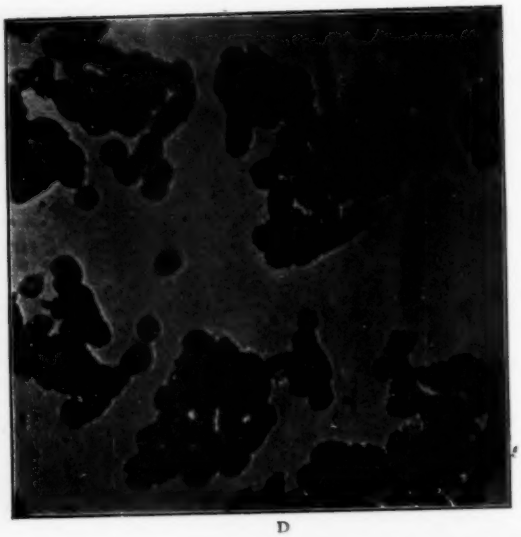

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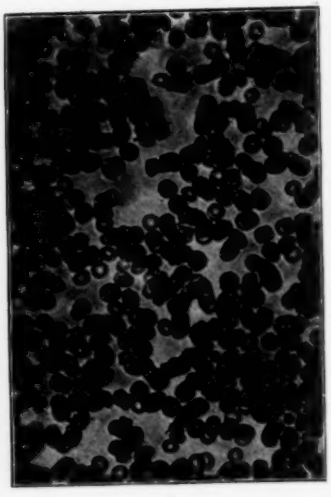

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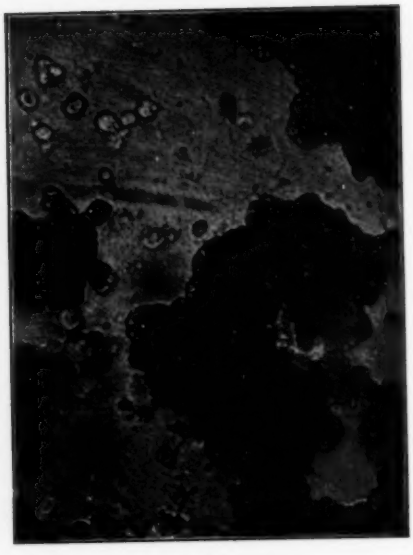

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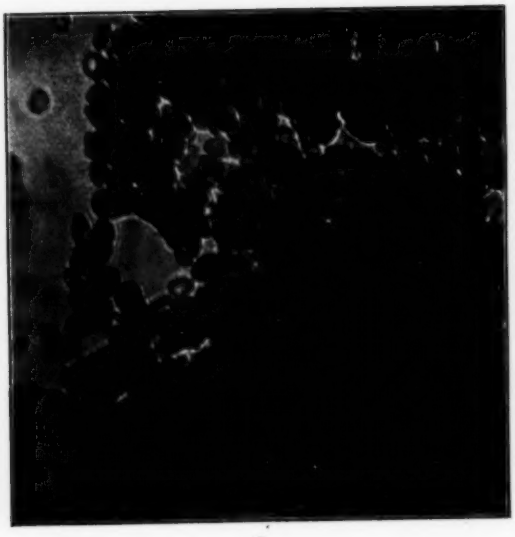

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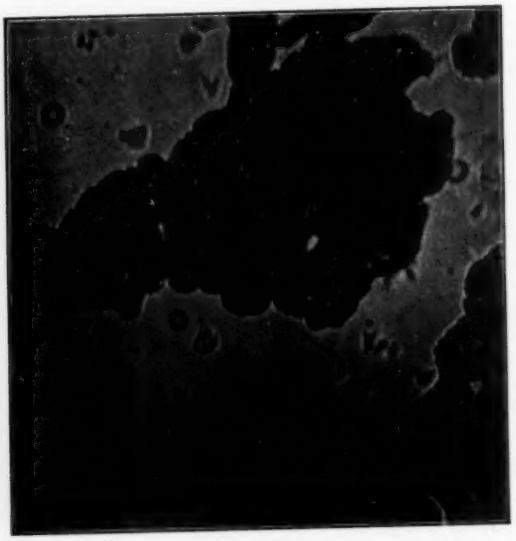

B

ORIGINAL ARTICLES.

THE RESTORATIVE INFLUENCE OF OZONE UPON THE BLOOD. *

BY G. LENOX CURTIS, M.D., NEW YORK.

Member of the American Medical Association; Medical Association of the Greater City of New York; Harlem Medical Association; Am. Congress of Tuberculosis; Am. Association for the Advancement of Science.

TO physicians with a strong scientific bent, the study of the blood is perhaps the most interesting subject in the field of medicine. The profession at large has been slow to appreciate the importance of a thorough knowledge of this fluid as an aid in diagnosis. It was not until I abandoned the drying and staining method and used freshly drawn blood for examinations that evidences of incipient or latent disease frequently became manifest, and a new field for investigation was presented. In fact, before that time blood examinations consisted almost exclusively of an estimation of the percentage of hemoglobin and a count of the red and white cells.

For a century, at least, the medical world at intervals, has been assured that the existence of morbid phenomena could be detected by an examination of the blood. Usually such announcements were received with more or less incredulity, and their authors were designated as charlatans. Whether such claims have been well founded, ever before, it matters little, since to-day we know that unmistakable indications of disease are often presented in specimens of fresh blood. Moreover, useful photographs can be made of the specimens, if examined within a few seconds, while the blood is still "vital." Failure occurs, however, if the blood be exposed to the atmosphere for a minute or two. The importance of utilizing only this method, which I have followed closely for the past six years with unquestionable success, is therefore evident. Not only does this method give us a knowledge of obscure causes, especially those from inherited tendencies, but it gives warning of the importance of instituting treatment before objective or subjective symptoms are clearly established. It enables the physician to decide when to begin and when to terminate his course of treatment. Indications of certain diseases are first found in the blood, and they may be detected there long after the clinical evidences have disappeared. It is obvious, then, that many diseases might be checked in their very incipency if the proper treatment could be instituted before the appearance of the usual clinical features, which are so often dependent upon a radical morbid process which may involve extensive tissue metamorphosis.

The popular notion that the condition of health of an individual is largely determined by the quality of his blood is a fact. I believe the person who has pure blood is immune to disease. It has been shown that the blood of immune nurses, exposed to such contagious diseases as variola, yellow fever and tuberculosis was perfectly normal and, therefore, resistant to infection. The cells of pure blood are robust, noticeably free and vigorous in appearance. This fact is demonstrated in Fig. A, which is from a specimen of blood as nearly pure as any that I could find; that is, the patient from whom this blood was drawn was apparently in perfect health, and the blood was entirely free from pathological elements. In a diseased state the individual cells cease to be independent, and adhere to one another. Degeneration occurs with the formation of new products, such as the well-known tuberculous matter. This consists of tubercular pus, debris, etc. Changes pathognomonic of certain diseases appear in the blood, and a knowledge of these conditions facilitates early and accurate diagnosis.

The maintenance of the normal condition depends upon environment. Good health is perpetuated when normal conditions of blood, drink and air-supply are conserved. When an abnormal state of the blood exists; when the microscope reveals the presence of morbid detritus, something must be done to restore the fluid to the normal state. This is accomplished by oxidation. Here we find also that the more oxygen the blood can take up, the purer and more resistant to disease it becomes.

The purity of the atmosphere and its capacity to sustain life depend upon the proportion of contained oxygen, while ozone is the "life-giving" principle of oxygen. I have found that ozone can be produced on a practical scale by means of a high-tension electric machine, and that it can be forced into and through the body to such an extent as to destroy the **materies morbi** in the blood and in other tissues. I have also found that as a result of the ozonic influence the processes of assimilation, nutrition and innervation are thoroughly re-established and the blood is restored to the normal conditions.

In chronic cases ozonation causes an increase in the number of red blood cells at the rate of about one million a month, while the white cells diminish in number at the rate of about eight thousand during the same period. In acute cases the rate of increase is much greater. I have noticed but two cases where the number of leucocytes were diminished below normal, both of which recovered during treatment, but in several instances the red cells were found to have increased to 6,000,000 in each cubic millimeter. After the number balance has been restored, the cells gradually regain their original form and vitality.

Ozonation is applicable to some surgical cases, as well as to those coming entirely within the domain of medicine proper. Inflammatory processes are speedily checked and suppurative processes are aborted. The streptococcus pyogenes, and the staphylococcus pyogenes aureus, albus and citreus, are destroyed and healthy granulation is promoted.

In reporting the following cases, I will do so in as brief a manner as possible, presenting only the more salient features in order to illustrate what I have said upon this topic.

Miss B., aged 32 years. For more than a year she suffered from osteo-myelitis. She had the usual ill-health and depressed spirits following an inflammatory process. The symptoms were chills, constant fever, irritable heart, marked indigestion, menstrual disturbances and hysteria. Blood examination showed:

Hemoglobin, 80%.
Red corpuscles, 3,800,000.
Leucocytes, 30,000.
Tuberculous matter, slight.
Fibrin, rheumatic.
Agglutination, slight.
Indigestion corpuscles, marked.
Many dead leucocytes.

*Read before the Section on Medicine of the American Medical Association held at New Orleans, May, 1903.

Diagnosis, blood-poisoning, due to suppurative process.
Treatment. Operation for necrosis; tonics with iron; ozonation.

Under this treatment the patient made daily improvement. At the conclusion of fifteen treatments an examination of the blood showed:

Hemoglobin, 95%.
Red corpuscles, 4,300,000.
Leucocytes, 12,000.
Tuberculous matter, mere trace.
Fibrin, normal.
Agglutination, slightly diminished.
No dead leucocytes; no indigestion corpuscles; serum almost clear; no fever; heart decidedly improved; no hysteria; no sign of blood-poisoning.

The patient was dismissed in one month with the wound healed and apparently in perfect health, having gained in flesh and greatly improved in vitality.

Miss M., aged 28 years. Diagnosis, mastoiditis following grippe. All the usual symptoms were present; temperature, 104.6°. The attending surgeon insisted upon an immediate operation, and reluctantly permitted ozonation. Following the first treatment the patient slept four hours, and in twelve hours there was a drop in the temperature of four degrees; the pain was greatly lessened, and there was a marked general improvement. Two treatments daily were given and the case steadily progressed toward recovery until restoration was complete. The patient was able to return to business at the end of one week. Fourteen months have elapsed without the slightest return of the trouble, and without further treatment, and the hearing remains perfect. Blood examination. See Fig. B.

March 1, 1901. Hemoglobin, 85%.
Red corpuscles, 3,500,000.
Leucocytes, 25,000.
Tuberculous matter, marked.

June 9, 1902. Hemoglobin, 85%.
Red corpuscles, 4,500,000.
See Fig. C. Leucocytes, 8,000.
Tuberculous matter, slight.

Mr. F., aged 62 years, had a sun-stroke when a young man, and for many years was delicate. Has had almost a constant headache and his health has been failing with approaching signs of a general breakdown. Upon rising in the morning, for the past year, he could not control a tendency to cry, and during the day would frequently burst into tears. A diagnosis of paresis had been made by the family physician. Constant attendance was necessary, owing to fear of appoplexy and the extreme nervousness of the patient. He was almost completely disqualified for business. Examination of blood, June 20, 1901, showed:

See Fig. D.
Hemoglobin, 85%.
Red corpuscles, 3,500,000.
Leucocytes, 8,000.
Fibrin, embolic.
Agglutination and bunching of cells.
Microcytes, many.

The patient was placed upon an iron tonic and ozonation, with instructions to drink freely of water. After ten treatments he was able to resume business, and at the conclusion of twenty treatments had so much recovered that the nervous symptoms had disappeared, and he had complete control of himself. An examination was made October 2, following two months' vacation, when his health was found to be re-established. Since then he has been actively engaged in business. At this examination his blood showed:

Hemoglobin, 90%
Red corpuscles, 5,000,000.
Leucocytes, 8,000.
No embolic fibrin, but in its place there was some rheumatic fibrin.
Microcytes, very few; and while there were no indigestion corpuscles on the occasion of the first examination, they were now present; hence the rheumatism. Without further ozonation and after a hard winter's work, during which time the patient maintained robust health, the examination of the blood on May 13th showed the hemoglobin to be normal.
Number of red blood corpuscles, 4,000,000.
Number of leucocytes, 10,000, and a return of the embolic fibrin. See arrow head which points to a long skein of this characteristic fibrin. See Fig. E.

Miss K., aged 27, for the past nine years has suffered from severe headaches. The pain was confined to the left side of the head. At times her speech had been affected and the left side of the body was numb. The arm and leg seemed heavy. Neuralgic pains darted throughout the organs on this side of the body. Two weeks before the patient was referred to me, her face became paralyzed and drawn to the left. The left eye was nearly closed; the right arm and leg were heavy; phonation was decidedly impaired. The patient was extremely nervous. This case was examined by several physicians who agreed that the trouble was caused by cerebral congestion or possibly hemorrhage. When the electrode was placed on the left side over the fissure of Sylvius, the pain was extreme. Examination of blood:

Hemoglobin, 75%.
Red cells, 3,000,000.
Leucocytes, 8,000.
Embolic fibrin.
Microcytes, many.

The patient was placed under ozonation. Following the fourth treatment, the general symptoms had nearly subsided, and the patient could bear the electrode over the brain without distress. The muscles of the face had resumed their normal position, and she had almost complete control of the affected limbs. At this period I had the patient visit her physician, who told me that he was astonished at the improvement in the case. In all, fifteen treatments were given, extending over a period of three weeks. Apparently a cure was effected. I cite this case to show the value of ozonation in acute conditions. It is my opinion that there had not been a hemorrhage.

Mrs. K., aged 31 years, had a pelvic abscess following miscarriage and gonorrheal infection. I was called to see this patient when death was hourly expected. It was probably the worst case of blood-poisoning I had ever seen. The woman was helpless and the odor from her body was sickening. An examination disclosed the presence of a septic pneumonia. The blood-count showed 2,500,000 red corpuscles and 64,000 leucocytes. No photograph of the blood was made.

The patient was immediately placed under ozonation, and within half an hour the physicians present declared there was a reaction for the better. She

steadily and rapidly improved from that time, having but one chill, which occurred on the fourth day following the discharge of an abscess in the lung. All signs of pus from the pelvic abscess disappeared, and the temperature declined to the normal point. The patient was put on solid food, and on the fourteenth day was able to sit up. On the seventeenth day the lung had entirely cleared, and convalescence was fully established. The blood examination showed: See Fig. F.

Hemoglobin, 65%.
Red corpuscles, 4,000,000.
Leucocytes, 20,000.
Tuberculous matter, trace.
Fibrin, marked, long skeins.
Agglutination, extreme.

In four weeks from the time the first treatment was administered she was dismissed from the hospital, well. The examination of the blood, however, distinctly showed post-clinical symptoms, but without farther ozonation the patient's health steadily improved, so that in two months from the first treatment, examination of the blood showed: See Fig. G.

Hemoglobin, 88%.
Number of red corpuscles, 5,000,000.
Number of leucocytes, 8,000.
Tuberculous matter, trace.

7 West Fifty-eighth street.

PUERPERAL ECLAMPSIA.*

BY GEO. W. GRIFFITHS, M.D., LOUISVILLE, KENTUCKY.

I PRESENT for your consideration to-night a subject as "old as the hills." If we are to believe the old adage that there is "nothing new under the sun," then my paper is in line. We know that history is constantly repeating itself. In our own day and time we are continually hearing of the most startling and wonderful revelations made from excavations near the "Eternal City." Instruments and surgical devices very similar to those used by the up-to-date practitioner of the present day have been unearthed, such as speculums, obstetrical forceps and various instruments used in general surgery.

I am reminded that during my attendance upon the lectures of a very distinguished surgeon in one of the New York colleges, long since gone far beyond the sound of the irrepressible ring of the midnight telephone, he taught us how to treat fractures of the leg and forearm by means of the padded splint. In presence of the class he covered the splint, or rather enveloped it in a snugly fitting sack; this sack or covering was stuffed with cotton-wool, thus making a very complete padded support. A roller bandage was then applied and sewed to the four edges, bringing the splint in close apposition to every part of the injured member. As the swelling receded, and as a consequence the dressing became loose, a tuck was taken running down the anterior and posterior aspect, making everything tight again.

This great man gave us to understand that this manner of dressing fractures was original with him. He believed it and I will swear to it. But to my great surprise, in looking through some surgical works of the last century, I found almost the identical teaching laid down there, only exemplifying or emphasizing the fact that there is "nothing new under the sun."

*Read before the Louisville Clinical Society.

I could go on and give instances without number of other strange coincidences; if you will pardon me for just one more—I remember a few years since I felt quite sure that my name would be handed down to posterity by having a catheter that I had devised named after me. In my mind's eye I could see the Griffiths catheter in bold type in the surgical catalogues of the world. I sent the drawing to Armstrong & Co., the surgical instrument makers of Indianapolis, and to my surprise by return of the next mail I received a catheter precisely like the one I had devised, made in Paris, I believe, for a doctor down in Tennessee.

Now, I have given you this long preface, but the subject matter or title of my paper has not yet been touched upon. I have been simply trying by a few illustrations to show how difficult it is to present anything new, and more especially to a great society like this. I take it, however, that after all it is the interchange of experience which awakens and refreshes ideas, that perhaps are slumbering, which gives us strength and aids our efforts to save human life when confronted with cases which seem beyond the skill of man to aid, possibly like the ones I shall report.

Several years ago I was summoned at midnight to see a lady in that portion of our city known as "California." When I reached her home I found that she was in the throes of labor. I had just returned that very day from a most delightful and profitable trip to the American Medical Association. Through the vigils of the long, dreary, weary hours of watching at her bedside you can imagine for a moment how my mind reverted back to the proceedings of that great society and the "boys" that I left behind me. Only those who have attended these meetings can appreciate it. The labor progressed in the even tenor of its way, with but little if anything unusual to note, unless probably the severity of the pains. She was a primipara, eighteen years of age, healthy and of rather a full habit.

About noon the next day I noticed a singular "far-off" expression of the face, then followed by a peculiar play of colors of the face, one time assuming a deep scarlet hue, soon to deepen into mingled hues of scarlet, blue and black, then dying out, leaving an indescribable ghastly pallor. As the labor progressed the colors became more sluggish as if reluctant to leave; twitching of the muscles of the lower limbs set in with a restless swaying of the body; nauseo, then vomiting. I soon saw that I was confronted with the premonitory symptoms of a grave case of puerperal eclampsia.

There was no time to lose. I ordered the lower bowel washed out with oleum ricini and oleum terebinthina, one ounce each in a pint of kitchen soap suds, evacuation occurring at once. This was followed by an enema of lacquer asafoetida and chloral hydrate, which gave temporary relief. I soon repeated the dose with almost negative results. Soon one of the most violent attacks of eclampsia that I ever witnessed set in. I repeated the chloral and asafoetida with no benefit whatever. Her tongue protruded and was thick and dry. I protected this by inserting a cork between the teeth secured by a string. Her mind began to wander, tetanic symptoms developed, her face was now almost black; grave complications of this kind followed in rapid succession. Remedies by mouth, hypodermatically,

or by the rectum utterly failed, only producing nausea and vomiting. I tried every remedy that I could possibly think of, only to meet with failure and discouragement. I wish it were in my power to draw a pen picture of this case, showing it in all its horrors, with the face a settled deep black, protruding eyes, thickened lips, constantly twitching. I expected every moment a rupture of a vessel from cerebral apoplexy or a stoppage of the heart's action, or asphyxia, profound or continued coma, or cerebral congestion. The temperature ran up to 104° F. She had what might be termed a "come-and-go" pulse; sometimes full and bounding, then weak and scarcely perceptible. I thought very often of the saying of the great Louis, "I treat symptoms, not diseases."

Here, then, was an opportunity to observe the truth of this, as new symptom after symptom followed each upon the other in rapid succession. Here, too, was a case where two lives were involved with but very little encouragement as to saving either, with the danger of the mother pulling through only as a wreck of her former self.

I applied the forceps as soon as it was possible to do so and delivered her of a large female child alive. As all other means had failed to give relief, I administered chloroform. The birth of the child did not in any wise abate the eclampsia. She continued to suffer in this way for nearly, if not quite, three weeks, and in all this time she was free from the conculsive attack but one day.

As before, all attempts at relief by mouth, hypodermatically or rectum, only resulted in disappointment. The stomach, either by reflex or otherwise, rejected everything. I kept her continually under chloroform, the attacks returning at regular intervals at first every fifteen minutes; they could be anticipated and prevented by the anesthetic. At about the end of three weeks I found that chloral hydrate by enemata would control the convulsions, permitting me to gradually withdraw the chloroform, but not before I had used the enormous quantity of seventeen pounds. The father and family protested, and were reinforced by nearly all the neighbors, declaring that I was killing the patient. I say the family protested—yes, all but her faithful mother, who stood by me like a heroine all through this trying and responsible case. She administered the anesthetic during my absence.

The patient made an excellent recovery without any sequelae whatever, unless probably a little nervous at times, due, she thought, to this labor. I delivered her two years afterwards, labor perfectly normal. To-day she is in robust health. Her first little girl lived to be three months old and then died of cholera infantum.

The interesting points in the case are (1) the long continuance of the convulsions, as it is rare for them to continue longer than forty-eight hours, and attacks prolonged beyond this time are generally fatal; (2) the entire recovery of the patient and delivery of the child alive, and (3) the enormous quantity of chloroform given. There can be no possible doubt as to quantity used, as I have proof on file.

I attended the wife of a well-known dentist of this city in her first confinement. She was sitting on the side of the bed laughing and talking when, without a moment's warning, she went off into the most terrible eclampsia, her face at once assuming a darkened, almost black hue. I administered chloroform, applied the forceps and delivered her of one boy alive; the second (she had twins) was delivered with great difficulty dead. She made an excellent recovery without the slightest complication following.

I also attended the wife of a prominent grocer in her first confinement. She was about thirty-two years of age. Like the second case reported she was sitting on the side of the bed, engaged in pleasant conversation, without showing the slightest premonitory symptoms, when she fell back upon the bed in a most violent convulsion. The venerable Dr. Cheatham happened to be in another room. He was called, administered chloroform, and I applied forceps and delivered her of a vary large girl. She had no return of the trouble. I have delivered her of three children since.

These cases demonstrate the great importance of having the forceps and anesthetic always on hand. If it had not been for these I probably would have lost my patients or made wrecks of them by not being prepared for such emergencies.

It may be interesting to know what statistics show as to the frequency, etc., of these cases.

Auvard says three in one thousand; Martin and Kaltenbach, one in five hundred; Venary, one in two hundred and sixty. The mortality is twenty-five per cent. Death of fetus is given at about 50 per cent.

The termination of eclampsia may be fatal, or there may be partial or complete recovery. Hemiplegia sometimes follows, and is, as a rule, considered incurable.

Mental troubles may follow. Oldhausen gives it as his experience that 6 per cent was followed by insanity.

Prognosis.—Recovery is the rule. In general, the eclamptic attacks which occur before labor are attended with more danger; those after labor have the least mortality.

Paget says eclampsia occurs during labor 100 per cent; before labor, 60 per cent; after labor, 40 per cent.

If it occurs during labor it is in the first stage; if after labor, within a few hours. Seven to nine months offers the greatest liability. Cases have occurred as early as two months.

Premonitory symptoms: Nausea, vomiting, restlessness, tremors of muscles of lower limbs, strabismus, loss of vision, eyes turned upwards and inwards.

DISCUSSION.

Dr. William Cheatham: The doctor forgot to mention the eye symptoms of eclampsia. There is often a neuro-retinitis or strabismus in these cases, inflammation of the nerve and retina depending upon the absorption of toxines. The prognosis in these cases of eye disease is usually favorable if the patient is seen early and the uterus is promptly emptied. In the after treatment iodide of potassium has been found of great benefit, and this being true, it would seem to be a good remedy before delivery is accomplished. It ought to have good effect upon the general condition of the patient as well as the local condition about the eye. It should be administered in full doses, followed by strychnia later in the disease.

Dr. Carl Weidner: It is a leading question whether we should deliver at once or use other means to relieve the patient. Elimination ought, of course, to be as rapid as possible. The essayist speaks of using enemata; it appears to me this is a rather slow process. I think drastic purgatives given by the mouth

are indicated, one of those which acts quickly, croton oil, elaterin, or large doses of calomel, rather than enemata. One of the best agents we have come to know within the last few years as an eliminative is the intra-venous or intra-cellular injection of normal salt solution; this will dilute the toxines and at the same time hasten elimination. I have seen some cases where convulsions were feared, but by the prompt use of eliminatives all trouble was avoided. In most of the cases the kidney will show signs of deficiency, the presence of a small amount of albumen, a few casts, a deficiency in urea, and these are important points in stimulating us to use proper methods of elimination upon the vicarious organs, the skin and bowel. Free purgation kept up at regular intervals is a method which ought to be employed, together with a plain diet, made up largely of milk or buttermilk.

In regard to premature delivery, it has been my misfortune to have seen two cases where premature delivery was brought on, both resulting fatally; both were in the sixth or seventh month of utero-gestation; both belonged to the so-called renal cases. The delivery gave no relief; both patients died in convulsions.

Dr. J. R. Wathen: About a year ago I saw a case in consultation with Dr. Bennett which may be of interest in this connection. A woman, aged thirty-five years, had been married about a year, and I was asked to see her at about full term. She had had a few convulsions at that time. I was given a sample of her urine, which, upon examination, showed no albumen, no casts, a little excess of urea in proportion to the amount of urine passed. Within twelve hours after my first visit I was called to deliver her. Chloroform was administered to control convulsions, and the child was delivered by the use of forceps. There resulted considerable laceration of the perineum and some hemorrhage and the woman's pulse went up to 120 to the minute. She had been given salts several hours previously, and the bowels had moved before delivery. Chloroform had to be continued for some time after delivery in order to control convulsions; later I substituted chloral and bromides with fairly good effect. This patient died, however, at the end of forty-eight hours after delivery.

Dr. T. P. Satterwhite: In one case of eclampsia, seen after delivery, there was a difference of opinion between the consultant and myself as to whether the trouble was eclampsia or a manifestation of hysteria; the premonitory symptoms were those of eclampsia as laid down by most authorities. The patient was of a neurotic temperament; she had a prolonged labor with her first child, and the second day after delivery she complained of pain in one of her legs and became totally blind, so she said. The consultant was called in at that period and he said this was a manifestation of phlegmasia dolens, and that the blindness was the precursor of eclampsia. She had practically no elevation of temperature (99¼° F.); her pulse was about normal, and I insisted that all these symptoms were hysterical. She continued in that condition for five or six days, when all the symptoms disappeared.

I can recall several cases of violent convulsions during the first three or four months of pregnancy, and all the women have died. I was not allowed to bring on premature labor in any of them; whether or not they would have gotten well had this been done I do not know. The late Dr. P. Guntermann and myself were associated in one case. A young Irish girl had convulsions, and there was a division of the family as to whether or not the induction of premature labor should be allowed. The priest was called in to decide the matter, and he decided that it should not be done. It has been regarded improper to administer opium in these cases. I remember one case seen with Dr. Irwin, in which he suggested that the patient be given an hypodermic injection of morphine. This was done, and I believe it saved the woman's life.

Dr. F. W. Samuel: I have always been under the impression that all cases of eclampsia were of renal origin. It is probable, however, that there are other causes, such as an entero-sepsis, for instance, as suggested by Dr. Weidner.

I had occasion to look this subject up about a year ago when a woman came to me with sugar in her urine. I suspected some complications in this case, but she was delivered at term and no trouble followed. I have never seen nor have I read of a case of eclampsia lasting so long as the one reported by Dr. Griffiths. I do not know whether it was hysterical or not; that his treatment was correct is proven by the fact that the patient recovered.

I wish to emphasize what Dr. Weidner has said about the injection of saline solution in these cases. It is certainly a most excellent method of treatment. Under the head of preventive treatment may be mentioned purgation and elimination by the kidneys, skin, etc.

Most authorities have abandoned the old idea that opium is contra-indicated in these cases, and now recommend the administration of morphine, chloroform and rapid delivery in the face of the convulsions.

Dr. J. M. Krim: It has not been my misfortune to have seen such an extreme case as that mentioned by Dr. Griffiths, but I have seen a great many cases where there were some tetanic convulsions during and after labor, with more or less edema of the lower extremities. Even where there is an edema of the legs you may not find albumen in the urine; still the edema persists, and I do not believe it is due to pressure upon the iliac veins.

Two weeks ago I was called at nine o'clock at night to see a patient, primipara, in labor, a midwife having been in attendance all that day. She told me that about five o'clock that afternoon she had ruptured the membranes and the water had all drained away. At eight o'clock in the evening convulsions came on, and two or three doctors in the neighborhood had been sent for; one who lives in the immediate vicinity was there when I reached the house and had attempted delivery without success. I examined the woman and found the os was about half dilated, but soft enough to be dilated. While I was making my examination a terrific convulsion came on, and she remained in that condition for three quarters of an hour, when there was some relaxation under chloroform, and I applied forceps and delivered her of a well-formed child. There was a moderate amount of hemorrhage, which was controlled by hypodermic injections of ergotol and hot water. After coming from under the influence of chloroform the woman had another convulsion, and chloroform was continued for several hours.

I have always been afraid to use morphine in these

cases. I have tried it in four or five cases and it was possibly the means of killing two of them. I used morphine in the case reported; she received four half grains in the course of three hours, which kept her quiet for eight hours. The next day there was one convulsion. High enemata and injections of saline solutions were given. Half a gallon of saline solution was introduced with very happy effect; it produced a copious action from the bowel and the woman was soon in a profuse sweat. This was followed by calomel and compound jalap powder, which had the effect of emptying the bowels thoroughly. On the fifth day puerperal sepsis developed, and the patient is now gradually recovering from that condition. Her temperature at one time was 106½° F., and remained at that figure for ten hours. By the use of cold applications and hot intra-uterine saline douches she has gradually improved. Her temperature has been normal in the morning for two days, slightly elevated in the evening, running up to 99½° F.

I believe the bugaboo about morphine in these cases ought to be done away with, as its use is often indicated and is followed by the most happy results.

Dr. M. F. Coomes: The trouble in these cases is to ascertain the cause. From a clinical standpoint it would seem that the fault is with the kidney; that the convulsions result from interference with this organ.

I recently heard a paper on this subject read before one of the local medical societies of the State, and in the discussion one of the members stated that he had seen a great many cases of puerperal convulsions in his forty years of practice, and said in the treatment he relied implicitly upon his lancet and had lost but two cases. In stout, healthy women I believe blood letting might be of advantage. In the discussion referred to a gentleman reported a case he had seen in consultation, in which saline injections were used. To satisfy himself that there was absolute suppression, he introduced a catheter and found no urine in the bladder. He then gave her the normal salt solution. Convulsions promptly ceased, her child was delivered and she made a good recovery.

I do not see why pilocarpine should not be used in violent cases to stimulate the skin. If I had such a case I would not hesitate to bleed, give saline solution and pilocarpine.

Dr. Ewing Marshall: I have had some experience with convulsions coming on during pregnancy, and have seen more cases before than during labor. I have seen none after labor, or it has been my good fortune to have the convulsions terminate with labor. Before labor it has been my experience if premature labor is induced convulsions cease. Whether this is due to removal of the fetus or not I am not prepared to say; but as soon as the uterus was emptied convulsions ceased.

As to the use of morphine in these cases: I remember reading a few years ago an article written by a New York man, in which he stated that he gave large quantities of morphine; he did not hesitate to give a grain at a dose, or even more, keeping the patient profoundly under its influence. Those who have used morphine most have preferred to wait until the bowel was thoroughly emptied before giving morphine, and I think this is wise; first empty the bowel thoroughly by croton oil or other means, even where the patient cannot swallow it can be put in the mouth and allowed to absorb through the mucous surfaces, keeping the patient under the influence of chloroform until the bowel is emptied; then I do not hesitate to use morphine. After the bowel and uterus have been emptied, if there be any further convulsions, I would not hesitate to administer morphine.

In regard to the after care of women who have convulsions before labor, where labor is induced, or at the time of labor: My experience is that these women are sometimes in a terrible condition. I recently reported a case to this society—a woman that I delivered for Dr. Bailey; she had convulsions and labor was induced. There was a peculiar manifestation before labor was brought on, viz.: deflection of the nose. She has made a perfect recovery, and the nose has returned to its normal position. I have seen a number of cases where the after treatment had to be continued for a year or more, where there was a severe melancholia, with evidence of kidney failure.

Dr. George W. Griffiths: In my paper I did not touch upon the etiology of puerperal eclampsia for the reason that so little of a positive nature is known about the causation.

There is really no recognized regular treatment for puerperal eclampsia; this statement may be confirmed by consulting any of the late text books upon this branch of medical practice. Quick action is demanded, and you cannot stop the chloroform permanently until the convulsions cease. Active purgation, etc., are indicated to get the benefit of elimination, but this alone will not control the convulsions.

The points I desired to emphasize in reporting the case were: The duration, and that seventeen pounds of chloroform were given, that its administration extended over a period of three weeks, that the lives of both mother and child were saved.

The convulsions in this case, I am satisfied, were not hysterical in character.

Note.—We are surprised to find that no mention is made of that excellent remedy, veratrum viride.—

PHASES IN THE TREATMENT OF CHILDREN.

BY GEO. R. WILSON, M. D.

THE following simple theory to explain one of the causes of nocturnal incontinence and its equally simple treatment will interest many who have to treat this often trying and inconvenient habit. Van Tienhoven, of Hague, suggests that in these patients, the bladder acts normally through the day, but misbehaves at night; so that the question is, shall the musc. detrusor urinæ or musc. sphincter vesicae, or both, be blamed? Van Tienhoven believes that the musc. sphincter is not strong enough to keep back the urine which collects in the bladder in the early part of the night and permits it to find its way into the prostatic portion of the urethra. The musc. detrusor is thus reflexly stimulated and the bladder is emptied; to prevent the urine from running into the urethra in this way the children were made to sleep with the pelvis elevated, in which position the bladder is capable of holding a certain amount of urine before the liquid reaches the level of the urethral opening. To accomplish this the foot of the bed was elevated so that the bed formed an angle of forty-five degrees with the floor; the children being sent to bed with empty bladders and without liquids after the evening meal. They sleep well in this position and do not complain. Fourteen cases were treated by this simple method only by Van Tienhoven, and were cured in short order.

Bacteriological investigation of the intestinal contents of children with infectious diseases have been made by Moncoroo, and a great number of microorganisms have been found, some of which were evidently living there and multiplying in the normal course of events, while others were associated with general intoxication. He excluded such diseases as typhoid fever, cholera, etc., in which the germ is in the intestinal mucous membrane, but special attention was paid to those cases in which enteritis has been superadded to certain infectious diseases in children, such as malaria, variola, rubeola, varicella and yellow fever. The climate of Brazil, in which country Moncoroo resides, is such that malarial intoxication exceeds in gravity and frequency all the other infectious diseases from which children suffer. Naphthalin was first tried in the class of cases under consideration with considerable satisfaction, but naphthol was subsequently found more efficient; salicylate of bismuth was also very efficient in cases in which the flux was considerable, while salol was tried in forty cases of malarial diarrhœa; it may be considered a valuable agent for intestinal antisepsis in children of any age who are affected with enteritis or entero-colitis of malarial origin. The intestinal flux diminishes and then disappears under the influence of salol, its deodorizing effect upon the stools becoming manifest almost immediately after its use is begun. The gases resulting from intestinal fermentation are not produced as long as salol exercises its antiseptic action; the colic and vomiting disappearing quickly. The drug is well tolerated by children of all ages and in none of Moncoroo's cases did it produce the least sign of poisoning.

Considering the question of intestinal antisepsis, an important advance made in some of our large cities has been the establishment of pasteurized milk stations, to distribute milk at cost or gratuitously to poor children. There has been a long, slow advance in the question of the treatment of milk, and undoubtedly the following conclusions are the present views on this vexed question. The sterilization of milk, like the use of antiseptics, is an expedient rather than an ideal procedure; whether the milk globule is a drop of fat enclosed in an albuminoid envelope, or whether it is a fat drop whose contour depends upon the menstrum which contains it, if this milk cell could be given to the child in a perfectly fresh and pure condition, the question of infant feeding would resolve itself into chemistry only; for it would be necessary simply to make an artificial food, identical in its chemical constitution with the natural food of the baby. The success of the formulæ which aim to accomplish this purpose must remain undisputed so long as the milk employed is pure and fresh, but milk is an excellent culture medium for bacteria, and it is handled under favorable circumstances for contamination, so that the preparation of milk for infant feeding becomes not simply a question of chemistry, but also a question of sterilization. We know now that a milk compound which may be absolutely correct from the standpoint of chemistry, may yet be indigestible for an infant and disappointing as a food, should bacteria gain access to such a mixture. A chemically perfect compound again may be indigestible from the character of the albumin in the individual globule of cows' milk, which is less digestible than in the human subject; artificial ferments have been frequently employed to remedy this difficulty, and the combination of peptonizing and sterilizing processes has been a natural experiment; in whatever way the theory of sterilization may be elaborated, there remains the serious problem as to whether infants fed upon sterilized milk are as well nourished by that food as by mother's milk.

Some years ago, Davis, in experimenting on this subject, introduced sterilized milk as a food for infants in his hospital ward. The milk ordinarily furnished to the hospital was subjected to a lactometer test before acceptance, and was found to be of a commercially fair quality. The sterilization was performed by the usual method, the bottles being corked with cotton, and the milk sterilized for half an hour. The class of children to whom it was given afforded an excellent opportunity to test the nutritive value of any food substance; for some were foundlings, while the majority of breast fed children were born of ill-nourished or diseased mothers, whose milk was not proper food; here sterilized milk was diluted in varying proportions, and was fed in quantities suitable to the age and development of the child. At the same time that this milk was introduced as a food, antisepsis was employed in the treatment of its digestive disorders. All possible cleanliness was observed about the infant; its diapers, after being washed, even, were wrung out in a dilute solution of bichloride of mercury. If diarrhœa supervened, the intestines were thoroughly irrigated with water, a solution of sodium salicylate, one grain to the ounce, or a dilute solution of thymol, or of some other antiseptic; while if vomiting persisted, the stomach was irrigated in a similar manner. Drugs thought to be of value as intestinal antiseptics were given in cases where the presence of fermented food was suspected. It was found that so far as sterilization was concerned there was no difficulty in furnishing the infants a diluted milky fluid, which was taken with considerable avidity. Acute enteritis subsided, and only few cases of "cholera infantum" occurred. In fact, no case occurred originally in the hospital during this time. It was soon observed, however, that although infants were exempt from symptoms of acute disease, yet that they remained ill-nourished and many recovered from acute enteritis, for which they were brought to the hospital, only to succumb after two or three weeks of gradual starvation.

Davis found that constipation, often severe, frequently followed the use of sterilized milk; and efforts were made in various ways to supply proper nourishment; milk was peptonized and pancreatized with the materials manufactured by Fairchild Brothers and Foster, and was then sterilized; and a fairly successful formula was that which combined milk, water, dried granular extract of malt, and a small percentage of bicarbonate of sodium. The result of this combination was a malted milk resembling chocolate, containing an excess of milk, which was quite palatable and agreed with some of the infants. Animal broths, white of egg, flour-ball, various preparations of malt, barley water, alcohol, several of the patented foods in market, and cod-liver oil were all used in turn with individual cases; of which cod-liver oil was most beneficial, especially when accompanied by the administration of Fowler's solution in small doses. It was the invariable experience, however, that sterilized milk, whether peptonized or not, resulted in but a temporary improvement in the nutrition of the infants. Where an infant was breast-fed, and several daily meals of a sterilized mixture, combining

milk, cream, sugar of milk, and lime-water were given, the artificial food seemed to be well borne, but when the sterile food was the only resource, the infant failed. Every opportunity was taken to examine the bodies of children dying of starvation under the use of sterilized milk. A moderate degree of emaciation was present, the mucous membranes were muscular tissues, were pale and atrophied. The stomach was usually distended to a considerable degree ,and its walls were excessively thinned. The intestinal tract showed no ulceration, nor was enteritis present. The mucous membrane was pale and excessively thin, and the condition of the entire digestive tract is best described as highly atrophic, with the distention resulting from paralysis. Sterilized milk seemed equally unsuccessful in winter and summer, and the conclusion reached has been that, *as a food, the ordinary process of sterilization renders milk unfit for nourishment.* In an ambulatory clinic, Davis furnished sterilized milk, prepared by trained nurses, to all infants whose mothers would use it. Many cases of acute diarrhœa, when visited by a nurse and given sterilized milk, speedily recovered, but in no instance was its prolonged use more successful than in the cases already described . The practical difficulties accompanying the effort to place sterilized milk in the hands of ignorant mothers can best be appreciated by those who have made the trial.

With children in moderate circumstances, the formula calling for milk, cream, and sugar of milk, to which, when sterilized is added lime-water, serves a useful purpose in many cases, but for prolonged use other expedients have been found necessary. An immediate improvement is seen in the condition of children wasting away upon sterilized milk, who have been taken to an entirely different atmosphere and given fresh milk suitably diluted and unchanged by sterilization.

Leed's experiments confirm the fact that a certain constituent resists digestion both in raw and sterilized milk, the amount being greater in the latter; this inability to digest this residual portion does not reside in the non-activity of the ferments, since its digestion is not brought about by doubling the amount of ferment, but depends upon the nature of this fraction (the nuclein in raw, the nuclein plus coagulated proteids in sterilized milk), which is not capable of undergoing solution under the influence of pancreatin. There are three classes of substances which are present in normal cows' milk. 1st. Substances in suspension, including: Nuclein, an organic compound containing phosphorus, the composition which has not as yet been satisfactorily determined. Fat globules, destitute of envelopes, and swimming in a colloidal fluid, the physical characters of which are favorable to their persistence as separate globules under ordinary conditions of temperature and reaction.

Next are the substances present in a colloidal condition, including: Casein and lactalbumin, the former of which appears to be in combination with alkali, and probably also with lime and phosphoric acid, and is precipitable by dilute acid. And thirdly, are the substances present in solution, including: a nitrogenos starch-liquefying ferment "galactozymase," milk-sugar, common salt, and certain soluble compounds of phosphoric acid.

The noted effects of sterilization, according to Leeds, are: The starch-liquefying ferment is destroyed and coagulated. After coagulation the galactozymase is insoluble is carried down with and included in the precipitate obtained on addition of dilute acid. A portion of the lactalbumin as it exists along with the other substances present in milk, is coagulated; but this coagulation is only partial, even after long continued heating; it thickens the milk and intensifies its colloidal characters. The casein is not coagulated by the heat, but is less readily coagulated by rennet, and yields slowly and imperfectly to the action of pepsin and pancreatin. The fat globules themselves are somewhat affected by the heat, and after standing, lumps of butter fat have sometimes been observed on the surface of the milk.

The coagulated proteid matters attach themselves to the fat globules and probably have an influence in bringing about that less perfect assimilation of fat which has been noted by various observers as true of infants nourished upon sterilized milk. The milk sugar by long continued heating, is completely destroyed, and is probably affected to a certain extent during the interval ordinarily allowed for sterilization. Lastly, sterilized milk is less readily and less perfectly digestible than raw milk, and if sterile milk is sought for, the present desideratum is to obtain it either directly from the animal, or by a process not accompanied by such serious drawbacks. Such a process is believed to be the heating of the milk, after being rendered feebly alkaline with lime-water, to 155° F. for six minutes, or, still better, the treatment in alkaline solution with pancreatin at 155°, followed, if not used immediately, by momentary heating to the boiling point; in other words, pasteurization of the milk. It was these researches of Leeds and Davis, confirmed by other observers, of course, that lead to the adoption of this process to all others.

Soluble substances naturally pass from the blood of the mother into her milk. Sodium salicylate became dangerous to an infant after its nurse had taken forty-five grains; iodide of potassium may be given in daily doses of three grains without injury; it was found in the milk twenty-four hours after the nurse ceased to take it. Potassium ferrocyanide does not pass readily into the milk:. Iodoform, even when applied externally to the mother, passes very readily into the blood, and effects the child more powerfully actually than when it is applied to lesions upon the child. Mercurials given to the mother do not affect the child readily. Regarding narcotics, twenty-five drops of tincture of opium did not affect the nursing while from one-tenth to three-tenths of a grain of morphia may be given at a dose with safety to the child; or from twenty to forty grains of chloral. If the breast was withheld for one and a half or two hours after these doses no effects on the child were observed. Remember that atropine affects the child very readily and powerfully.

Fehling experimented with citric acid, mineral acids and vinegar, finding that their use does not affect the child; the normal alkalinity of the milk remains undisturbed. No restriction in this direction should be put on mother's diet. As to the influence of fever upon the milk, the septic fevers counter-indicate nursing, because the milk ducts and secretions are infected with micrococci. The child should at once be taken from the breast in these cases. In non-septic fevers the child should nurse so long as

the secretion remains, and simple means should be used to abate the mother's fever.

A subject which has attracted but little attention in America is that of idiocy. Children of this class are gathered in asylums and hid from public and professional gaze. It has been my fortune to see many of these cases and I take pleasure in recording the report of Wilmarth, made from the study of the brains of one hundred feeble-minded children.

The one hundred given may be summarized as follows: Sclerosis with atrophy, 12; sclerose tubereuse, 6; diffuse sclerotic change, 7; degenerative changes in vessels, ganglionic cells, or meduallary substance not constituting true sclerosis, 15; hydrocephalic, 5; general cerebral atrophy, 2; non-development in various forms, 16; infantile hæmorrhage, 1; extensive adhesion of membrane from old meningitis, 2; angiomatous condition of cerebral vessels (with degenerative changes), 1; glioma (with sclerosis), 1; porencephalous (with non-development), 1; or thirty-one cases where actual disease or imperfect development of the brain proper was not demonstrated, there was hupertrophy of the skull, 6; acute softening (recent), 2; demi-michacephalic, 2; when the brain was above usual weight, but the convolutions large and very simple in their arrangement, 2. The average weight of the brain was 38.3 ounces, but in fourteen cases the weight was below 30 ounces. There is a comparatively large number of cases of actual cerebral disease, in proportion to the relatively small number where imperfect development produces the mental defect. With this fact, we see a corresponding improbability of a large majority of these cases ever attaining a full mental development. Children who inherit inactive brain from parents below the usual average of intelligence, without history or infantile disease or epilepsy, are the most promising of general and permanent improvement. The pediatrist has learned that the brain diseases of infancy are peculiarly destructive, not only leave a permanent injury to the brain, preventing its growth and development, but being liable, from the irritation they leave, to kindle epilepsy.

Injuries to the nervous system during birth, may occur to the peripheral nerves or to the brain; while cases have been reported of spinal birth palsy. The peripheral form is usually seen in the facial nerve or in the nerves of the arm. The former is due to the pressure of forceps, the latter either to the same pressure in front of the trapezius, to that of a traction hook above the shoulder in breech presentations, or to a fracture of the humerus. The commonest and most important form is the cerebral birth palsy. That this is due to an injury received during birth, is shown by the fact that almost all cases have been instances of difficult parturition, often terminated by the forceps.

Of twenty-six cases of this affection, of which the author has notes, the child was a first-born in sixteen, and in six of the others the head was delivered last. The external signs of severe pressure from the forceps are often to be seen, and sometimes convulsions in the first few days of life indicate the morbid state of the brain. Further autopsies show the lesions of cerebral hemorrhage, usually situated at the convexity of the brain. Among the symptoms may be often noted a blood tumor of the scalp. There may be apparent death, or general convulsions and rigidity. In slighter cases it is only when the child should begin to walk and talk that a rigidity of the legs is discovered, and usually spasmodic, athetoid or choreiform movements of the arms, with a degree of inco-ordination. Inability to support the head, curvature of the spine, strabismus and difficulty in articulation and swallowing are sometimes present, and mental defect is common. The disorder is usually bilateral, but sometimes limited chiefly to one arm Very commonly the arms escape, and there is adductor spasm of the legs with cross-legged progression.

Recurring convulsions are sometimes seen, and may continue as a form of epiiepsy. The preponderance of the affection of the legs is due to the fact that their centre is situated nearer the middle line and the point of greatest compression than is the arm centre. The difficulty in swallowing, and the retraction of the head are probably caused by hemorrhage in the region of the medulla. It is likely that many cases of epilepsy and of mental defect are due to slight damage to the brain during birth. The diagnosis of the malady rarely presents much difficulty. The most important distinctions from other cerebral diseases are that there is no history of a definite onset at any time after birth, and that the condition is not progressive. These two features distinguish it from tumor of the pons producing bilateral weakness and spasm. Accidental hemiplegia, occurring during infancy, may resemble one-sided birth palsy, but there is usually a distinct history of acute symptoms at the onset. Moreover, even in the apparently unilateral birth palsy, there is almost invariably some slight disturbance of the same kind as that on the affected side. In the cases in which the legs suffer much more than the arms, the diagnosis from cases of spinal spastic paralysis is difficult.

The movements of the hands are distinctly awkward, and differ from those of a healthy child. Then, too, the case is probably one of birth, palsy, if there is no history of definite onset, and the child has never been able to walk; since chronic disease of the spinal cord is almost unknown in childhood. When the weakness of the legs is slight, the gait somewhaot awkward, the muscles large and firm, and the calf-muscles somewhat contracted, the case may be mistaken for one of pseudo-hypertrophic muscular paralysis. It is, however, distinguished from the latter by the absence of the characteristic condition of the muscles around the shoulder, the fact that the contraction can be overcome, and the presence of exaggerated reflexes and of reflex spasm on cutaneous stimulation. As regards the prognosis, the tendency is toward slow improvement, particularly slow in the first half of childhood. In almost all cases in which there is not actual idiocy, the patient ultimately learns to control the muscles and to walk, though in severe cases the gait almost always preserves more or less peculiarity. The hands also become steadier in time. No opinion can be given as to the mental condition until the second year of life is passed, when the prognosis will be guided by the extent of defect. Treatment consists in training the motor powers by rhythmical gymnastic exercises, in checking any tendency to epileptiform seizures and in employing instrumental support if necessary. Operation for talipes is never justified, as there is no permanent shortening of the muscle, while electricity is useless.

RECENT ADVANCES IN THE STUDY OF HEART CONDITIONS.

BY M. E. FITCH, M.D.

SUDDEN death is always interesting to the physician; it is of vital importance in medical jurisprudence. There are various points of view of sudden death; the physiologists, pathologists and medical jurists have all had their beliefs. Key-Aberg believes that the medico legal experts should especially comprehend all the anatomical alterations which are able to end life suddenly. Key-Aberg worked in the medico-legal laboratory of Vienna where he analyzed 852 cases of sudden death. He believes that sufficient importance has not been given to chronic endarteritis, (Virchow — endarteritis chronica deformans). It might be said that local conditions in Vienna may be different from other cities, but these are the more important conclusions: In seventy-five per cent. of all cases of sudden death from natural causes, the fatal result is due to chronic endarteritis, or its sequences. These sequences are paralysis of the heart, rupture of aortic aneurism, rupture of the heart, rupture of the aorta or intracranial hemorrhage. Of the lethal causes named, cardiac paralysis formed 71 per cent.; rupture of the heart, 2.4 per cent.; rupture of aorta, rupture of aneurism of aorta, etc., 8.7 per cent.; rupture of aorta, 2.5 per cent.; intracranial hemorrhage, 13.3 per cent. Of the cases of sudden death from natural causes in persons over fourteen years of age, the cause was paralysis of the heart in 52.8 per cent.; rupture of the heart, 1.7 per cent.; rupture of aneurism of aorta, etc., 6.4 per cent.; rupture of aorta, 1.9 per cent.; intracranial hemorrhage, 11.3 per cent. Among the cases of chronic endarteritis, males formed a decided majority; this being especially marked in paralysis of the heart (64.5 per cent. males) and rupture of aortic aneurism (males about 79 per cent.) Senility does not seem to be an important factor, since a majority occurred between the ages of forty and forty-four; men dying of paralysis of the heart are younger than women dying from the same cause; the same probably holds good for aneurism of the aorta. Chronic endarteritis develops more rapidly and progresses with greater energy in men than in women; while social position and profession appear to be without influence on etiology. More cases of paralysis of the heart occur during the first three and last three months of the year than during the other six months; most of the cases of death from this cause occur in winter.

In general, deaths from chronic endarteritis are most frequent in winter; then follow autumn, and with about equal frequency, spring and summer. Endarteritis deformans in the coronary arteries and their orifices in the aorta, is a prolific cause of cardiac paralysis; in calling attention to the importance of such an investigation, Key-Aberg shows that out of thirty-three cases of cardiac paralysis, due to endarteritis, he found in twenty-two arterio-sclerotic changes in the vessels named, quite sufficient to prove a casual relation.

From the results of thirteen autopsies, in which death was considered due to cardiac paralysis, brought about by sclerosis of the coronary arteries; thus authority arrives at results directly opposed to the opinions generally adopted, so far as fatty degeneration of the heart was concerned. In only two out of the thirteen did he find fatty degeneration involving a large area.

When obstruction of the pulmonary circulation occurs, the right heart has far more work to do, and in ratio to its inability to remove the obstruction, venous accumulation follows, for excessive venous congestion means a corresponding arterial deficiency and, consequently, there is an unequal division of blood between these two great divisions of the circulation.

This fact becomes important in the acute pulmonary affections, for here the heart becomes the centre of our solicitude.

As clinicians, we must remember that the arterial pulse does not show the impending peril; it is not the left heart that feels the force of the battle. Should the pulse be small and weak, it is due largely to the fact that the left heart does not receive enough blood from the lungs to distend the arterial system. The trouble here is not in the loss of propelling power as much as in the lack of blood. Could we put our finger on the pulmonary artery, then could be received vital information.

The relation of these factors, one to the other, controls the issue of the case; increasing the obstruction with decreasing right-heart power means death; while decreasing obstruction with sustained right-heart power holds out a promise of recovery. The left heart and the radial pulse has almost nothing to do with this condition; the peril is not from general exhaustion, as in fever, nor from failure of the heart as a whole, as in some cases of infection, but from exhaustion of the right heart in its effort to force the venous circulation through the obstructed lungs. Now we cannot put our finger upon the pulmonary artery, yet we can obtain nearly the same information by putting the stethoscope over the pulmonary valve; here it is entirely practicable to separate the pulmonary valve sounds from the aortic, and to study the peculiarities of the former as indicating the condition of the pulmonary circulation; of course, in some cases the valve sounds are masked by bronchial rales, but we can find even in the most rapid breathing there are brief intervals during which the practiced ear may nearly always gather valuable information. Note carefully the sound of the pulmonary valve; in a case of pneumonia, at the outset, while the right ventricle is still in vigorous action, this sound is especially clear and sharp, showing a quick and strong recoil of the pulmonary artery following the ventricular systole; this is due to unusual distention of the vessel; this in turn is due to the resistance to the blood passing through the lungs. Should the case terminate favorably, this accentuation of the pulmonary sound will probably continue through the whole course of the disease, becoming less marked as the obstruction in the lung decreases; where the severity increases with an unfavorable tendency, a time comes when not only this accentuation is lost, but the normal intensity of the valve-sound is lessened, the sound becoming weaker and weaker, until it disappears.

Do not be deceived; the obstruction has not become less, but simply the muscular power of the right ventricle has become exhausted, so that the blood is no longer driven into the artery with sufficient force to distend it, and there is not enough recoil to bring the valve-cups together. The weakened right

heart favors still greater pulmonary obstruction, and this in turn adds to the burden of the right ventricle, completing a "vicious circle." The ventricular struggles grow feebler and feebler, while the tension within its cavity constantly increases, as the blood presses into it from behind. Finally the over-taxed muscle cannot summon the energy for another contraction, and its action ceases in diastole, fortunately, it is possible to trace the steps which lead up to this result by clinical symptoms and physical signs. First in importance are auscultatory and other signs of pulmonary obstruction; then come signs of general venous congestion; you may be able to outline the distended right auricle by percussion, or even may be seen pulsating at the right external border. An increased area of cardiac dullness extending toward the xiphoid cartilage indicates the repletion of the right ventricle, and in spare subjects the labored beating of this may be felt by pressing the fingers under the costal cartilages; while the tense, hard pulse of inflammation is replaced by the small pulse of arterial depletion. Subsequently the superficial veins grow prominent, and the liver and spleen are enlarged. Passive renal hyperaemia is found in lessened excretion and albuminuria. These indications show a general preponderance of blood in the venous side of the circulation. Treatment must be directed to diminish the disparity between the venous and the arterial supply; this was done formerly by copious bleedings, which, however, were practiced rather as a a general antiphlogistic measure than for the mechanical conditions found.

Temporary relief followed, which was ascribed to subduing the inflammation, but withdrawing a large amount of blood from the venous system brings relief to the congested lungs, and gives a respite to the overworked right ventricle. This may be enough to bridge over a crisis. Nowadays we can, in a majority of cases, get the good effects of venesection by less objectionable means; bring about a more even distribution of blood between the venous and arterial systems, and in this way relieve the engorgement of the former; to do this, first of all regulate the quantity and the quality of the food in reference to the changed conditions of congestion and hæmatosis. The desire "to keep up the strength" and apprehension excited by the small and feeble radial pulse are apt to suggest the administration or more food than is beneficial or necessary, as pointed out by Smith. The digestive organs are not in condition to do the work demanded of them in health, and also the pulmonary obstruction interferes with the process of hæmatosis. To give large amounts of food entails a double embarrassment; undigested food in the stomach gives rise to flatulent distention, rendering respiration more difficult; and there is also the risk of loading the blood with more nutritive material than the imperfect respiration can act upon in the process of sanguification. Smith thinks this is more important than it generally appears to the profession. Generally we consider only how much food can be digested and absorbed, and overlook the fact that before the food so absorbed can sustain the body, it must be assimilated, a process in which respiration is important. The introduction into the venous current of more nutritive material than can be fully acted upon through the agency of the respiration, not only fails to add to nutrition, but is a positive burden to the already overtaxed vital powers.

Alcohol is one food that is less liable than others to defective assimilation, for in reasonable quantity it acts as food; it is easily taken into circulation, is easily oxidized, and any excess is readily disposed of by the eunctories, instead of remaining to embarrass the vital processes. Again, it retards tissue-change, and thus lessens the amount of carbon dioxide which the lungs throw off. The use of alcohol as a food in these cases is justified, therefore, as fully by its physiological action as by its chemical effects. Its stimulating action is also of the greatest importance; for nothing meets the indications so fully in pronounced depression of the nervous system. Especially in pneumonia, when under the shock of the infection, where the patient is delirious with tremor and all the evidence of nervous exhaustion, the liberal use of alcohol is indicated. Alcohol also relaxes the arterial system, as do the nitrites. This property is shared in a less degree by numerous other remedies, and notably by aconite, the value of which in inflammatory diseases, accompanied by high arterial tension is now acknowledged. The idea of "bleeding a patient into his own vessels" is a brilliant one, brilliantly expressed, and the phrase well illustrates the peculiar action of these medicines; by their specific effect, either upon the vasomotor nerves or directly upon the muscular fibre of the vessels, a relaxation of the muscular coat and a consequent dilatation of the whole arterial system appears.

Ples believes that the time to bleed in pneumonia is at the very outset in robust, healthy individuals, in whom the disease sets in with great intensity and high fever appears quickly. Other physicians have reported excellent results from the use of antiphlogistine, used intelligently. Veratum viride, an old-fashioned remedy, holds its own with many practitioners, given in doses of two to five drops of the tincture, every two hours, the results are often excellent. As this paper is only on heart conditions, we will not take up the question of pneumonia as an infectious disease, except to say that if this is clearly proved, which is still doubtful, it will not affect the treatment of the heart, which is the storm centre.

We do not realize the change in capacity which may be produced in this manner; it is much greater than is generally believed; for example, on this point Ringer says, "It has been shown that the vascular system is always in a state of semi-contraction, and that by paralyzing the vaso-motor nerves it is possible to double its capacity." An effect much short of this would be sufficient to produce a vast difference in the dynamics of the circulation, and to afford a large measure of relief to the over-distended venous system. It is in this way Smith thinks we should direct our efforts in cases involving pulmonary obstruction. There is an opinion prevalent that these drugs are contra-indicated when there is feebleness of the heart's action; and there are many practitioners who would regard, with a feeling akin to horror, the administration of nitroglycerin, for example, when the pulse is notably small and rapid.

In the more urgent cases, supply more powerful arterial relaxants, such as nitroglycerin and the potassium and sodium nitrites. Fraser has found nitroglycerin extremely useful in relieving the dyspnœa in bronchitis, and he explains its action by assuming that there is in these cases a spasm of the bronchial

tubes which is relieved by the drug; but the action on the vessels seems to afford a much more probable explanation. Again and again it has been my experience to have a patient with pneumonia, somnolent or even comatose, with the face gray, the lips livid, the respiration superficial and from 50 to 60 per minute, and the chest everywhere full of moist rales, released from this apparently hopeless condition by drop doses of a one per cent. solution of nitroglycerin, administered every fifteen or thirty minutes. Here the theory of "spasm" could scarcely be entertained, but the relief comes from the transference of a mass of blood from the veins into the arteries. The sodium or potassium nitrite produces a more enduring effect than nitroglycerin, and is preferable on that account. Digitalis is often given in this condition, but it seems to be clearly contra-indicated by its tendency to diminish the vascular area. Its action is to empty the arteries into the veins, whereas our efforts should be to empty the veins into the arteries; its administration is based upon the wrong assumption that the heart as a whole, and not the right heart alone, is in danger of exhaustion. Loomis says that in pneumonia digitalis does more harm than good. It not restore contractility to the paralyzed vessels of the affected part, but only distends them more by increasing the tension in the unaffected vessels with which they communicate. The cardiac energy it gives is in proportion to the muscular tissue acted upon, and, therefore, is twice as great on the left side as on the right But the left heart has already an undue advantage over the right, and only harm can come from further increasing the unequilibrium. Still we have seen digitalis excellent in those cases of pneumonia marked by high temperature and great nervous exhaustion, where the condition is due to the intensity of the infection and not to pulmonary obstruction. Here the heart, as a whole, is in danger of failing, and the tonic property of the digitalis may be of essential service. Much benefit of recent years has been given in some cases of pulmonary obstruction from the inhalation of oxygen gas; here not only the aeration of the blood is improved for the time being, but the pulmonary circulation is consequently increased. This is shown in pulmonary œdema, or, still more notably, in bronchitis, where the speedy decrease in the moist rales which often follows the inhalation of the gas.

"A vicious circle" exists in such cases; congestion and effusion prevent proper aeration of the blood, while imperfect aeration of the blood aggravates congestion and effusion; destroy this circle by breaking either of the segments of which it is composed; strike at the congestion when administer vaso-dilators; and for the imperfect aeration give inhalations of oxygen; a combination of the two methods will be successful in a considerable number of apparently desperate cases. Finally, there are certain mechanical expedients to which we may resort before we abandon all hope of relieving the patient. One of these is artificial respiration. Just as the right heart becomes fagged by the unusual labor imposed upon it,.

In actual practice we find that more serious than the muscular fatigue which interferes with inspiration, is the sodden and inelastic condition of the lung, hindering its retraction in expiration; as a result of the combined conditions there is an exceedingly superficial and rapid breathing, which exhausts the remaining strength quickly. Artificial respiration may do much, where this is the case, to supplement the efforts of the patient, done by two persons, one of whom draws the arms steadily upward over the head until the maximum of inspiration is obtained, when the traction being relaxed the other presses with both hands firmly upon the lower part of the chest, in a direction backward and toward the median line, thus diminishing both the depth and breadth of the thorax. This latter manoeuvre will probably result in the pulsion of froth from the nose and mouth, which should be wiped away before the pressure on the chest is relaxed. By alternating these movements, not only will a greater amount of air be taken into the lungs, but a considerable quantity of mucous, which must be avoided.

The pathological study of the heart is interesting. Meigs, an observer with something to say, has carried on, during a number of years, a series of researches, and it has impressed him that the most important and difficult problem is to decide what particular appearances in a given tissue are histological and what pathological; as a result of his labors, certain appearances of the normal microscopical structure of the heart have been described, which are not commonly known, either to histologists or pathologists; these appearances being connected with the condition both of the vascular supply and of the structure of the muscular fibres. Over the heart surface there are numerous arteries and veins of the ordinary structure, having three coats, the middle muscular one having circular fibres; though veins having three coats are always present on the surface of the heart, the conclusion was forced on Meigs that they are rare in the muscular walls, where the three coats are found only in veins of large size, and the smaller ones have but a single coat. This single layer is composed of endothelium, and is in appearance and thickness precisely like the wall of the smallest capillary. Contrariwise, the arteries can be seen with three coats, the circular muscular fibres being distinctly visible, until the size of the vessel is a little greater than that of the smaller capillaries. The process of transition from arteriole to capillary is of great interest; while the mode of transition from arteriole to afferent capillary is in strong contrast with that of the efferent vessels. The vessel into which the capillaries of the smallest size empty their contents, is one having walls no thicker than the smallest capillaries and of a similar structure. The smaller capillaries, too, at their junction with the larger vessel, often form much less acute, break up into afferent capillaries; the small afferent capillary forms a right angle with the larger one, emptying its blood into a stream flowing directly at a right angle to its course up to its termination. These efferent capillaries seem much more numerous than the afferent ones, emptying into the larger vessels within small areas, while at the points where the arterioles break up the number of capillaries is relatively much less. The large efferent vessels are of greater diameter than the arterioles by which they are accompanied and with which they correspond; but whether this is the case during life, or whether the vessels carrying blood out from the tissue are larger, because they remain distended after death with blood, it was impossible for Meigs to decide. The usual condition of things in the heart is that when parallel vessels, the one a carrier of venous and the other of arterial

blood, are examined, the arteriole is found to have the structure commonly described in vessels of that nature, being composed of three coats, while the venous vessel exhibits but one, and this coat presents an appearance identical with that of capillaries of the smallest size, being simply endothelium. The important anatomical point to be made from this fact is that the venæ comites of arterioles in the walls of the heart are vessels having a single coat; while the distribution of the capillaries in the muscular substance of the heart is well known up to a certain point; histologists thoroughly understand that the minuter arterioles have their termination in capillaries which, after ramifying among the muscular fibres finally end in venous radicles, to discharge the blood at last into the right auricle. Of course, to say that the whole circuit of the vessels has been thoroughly traced out, as has that of even the minutest capillaries in the liver and kidneys, would not be true, for in the ordinary works upon the subject the matter is not pursued beyond the statement that the muscular fibres are richly supplied with capillaries. The capillaries run, of course, in all directions amongst the muscular fibres, parallel with and between them, at acute angles across them, and again after at right angles. The second is the more imporant part of the subject, the appearance and structure of the muscular fibres in their more intimate relations with the smallest capillaries. Sections in which the muscular fibres have been cut as nearly as possible directly across their length show the position and number of the smallest capillaries and their relation to the fibres in a graphic manner. Here the vessels present themselves in the form of circles, or, should the section be oblique, as ellipses. Those who have studied sections of blood vessels will realize how vastly easier it is to draw conclusions in regard to their condition when transverse sections are under consideration than if they be longitudinal; the vessels being hollow cylinders, the variety of the appearances is infinitely less in the case of transverse sections. In the case of longitudinal sections, the variety of appearances that may be produced is almost indefinite; it being quite impossible to give the adequate description of these varying appearances, but the mere mention of their existence is sufficient, that under the best circumstances with the microscope of vessels in longitudinal section yield less satisfactory and less conclusive results than cross sections. When Meigs first observed these circles lying within the muscular fibres, and, at their edges partially imbedded in them, he did not attempt to explain their appearance; it seemed as if they must be capillaries, and yet the fact that they were closely surrounded by the darkly-stained muscular material made it at first impossible to determine that there was any endothelial wall separating the lumen from the encircling muscular fibre. Closer examination, however, brought to light the fact that in places endothelial nuclei could be distinctly seen and study of a great number of sections from many different hearts showed that occasionally the endothelial wall could be seen in capillaries entirely imbedded in muscular fibres, thus forcing him to the belief not only that the capillaries enter the muscular fibres, but that they actually penetrate to their very centres. To prove this conclusion to be correct it was necessary to find corresponding appearances in longitudinal sections; but longitudinal sections do not yield such satisfactory results as transverse ones, and the appearances are much more difficult to interpret owing to the infinite variety of forms produced. The nuclei look as though they lie loosely in the spaces.

A section cannot be cut which would run parallel to the centre of a fibre for a great distance, though this would be necessary to demonstrate ocularly any great length of a canal in such a fibre. Yet some of these sections do show fibres which seem to be channelled out for a considerable portion of their length. Of course, it might be said that all these spaces which have been depicted and described are simply the result of splitting of the tissue in course of preservation and preparation, and such an assertion would be difficult to disprove so far as the appearances in the longitudinal sections are concerned. The appearances, however, in the transverse sections do not seem to admit of such a view being reasonably entertained. The presence of the endothelial nuclei, and the fact that occasionally the whole circle of endothelium can be made out, most emphatically contradict such an assertion. It would be interesting to know at how early a period of life the capillaries exist within the muscular fibres, for the manner in which the muscle tissue grows from nuclei, which at an early period are not to be distinguished morphologically from the nuclei from which the other tissues arise, proves that capillaries do not exist within the muscular fibres in young embryos. The explanation of the presence of the brown pigment which is always found in the muscular fibres of adult heart is one requiring investigation. The fact that the cavities or channels which have been described are most common and most marked in the parts of the fibres near to the nuclei, and that the pigment, too, is found in the same position, would seem to point to this pigment as derived from the blood.

CANCER OF THE LARYNX AND OF THE BREAST.

BY M. SHELLENBERG, M.D.

SOME years of statistical records show that carcinoma has occurred in the proportion of about one case in every three hundred of laryngeal disease as seen by laryngologists. Intrinsic carcinoma is almost always located above the glottis, and is much more frequent than extrinsic carcinoma. Carcinoma is much the more frequently unilateral, the left side being affected far oftener than the right. The term carcinoma is misleading, for such writers as Baratoux include sarcoma, epithelioma and carcinoma in this category. Sarcoma is the least frequent, and the fasciculated variety is much more frequent than the globecullar. Lymphosarcoma, alveolar sarcoma and myxosarcoma have been noted likewise. Epithelioma is the most frequent variety of cancer, comprising nearly four-fifths of the whole. Nearly all examples have been lobulated. Carcinoma proper occurs in the proportion of about three to twenty. While the cause of cancer is yet uncertain, still local irritation precedes in some instances, and heredity is evident in others, and it has been observed occasionally in association with tuberculosis. Cancer has been reported in the very first year of life, and as late as ninety years; but more than half of the cases were between the ages of forty and sixty years, being far the more frequent in the male, occurring in the proportion of about seven to one.

Involvement of the lymphatic glands occurs in intrinsic cancer as well as extrinsic, but in far less proportion. It is usually unilateral, involving one or more glands along the border of the sternomastoid muscle. In intrinsic cancer the first gland to be affected is one at the anterior border of the muscle at a level with the thyro-hyoid ligament; in extrinsic cancer it is the inferior cervical ganglions which become implicated. This involvement is rarely early. It may become sufficiently columinous to compress the trachea injuriously, it may contract adhesions with adjoining tissue, and it may undergo inflammation and ulceration. On the other hand, it must be remembered that all enlarged glands are not cancerous. Extirpation of the larynx is the best method of obtaining a favorable result, especially if the diagnosis has been made early, because it not only prolongs life but renders it supportable. In discussing palliative treatment Baratoux recommends most highly tincture of arbor vita, both topically and internally, in doses of 15 to 30 grains, citing the case of a woman whose life had been prolonged forty months by this remedy, although the cancer involved the palate, posterior palatine folds, uvula, tonsils, lateral walls of the pharynx, the epiglottis and vocal bands. In cancer of the breast, particularly when the carcinoma is superficial, a dumpling or pitting of the skin, entirely independent of carcinomatous adhesion between the skin and the growth, appears early, arising from shortening of the fibrous bands or processes of the superficial mammary fascia which pass from the posterior surface of the skin into the interior of the breast. This sign, along with the age of the patient and the consistence of the growth may enable one to diagnose the nature of a tumor not larger than a small nut. In over 5 per cent. of the noncarcinomatous neoplasms of the breast the nipple is buried, displaced, or sunken, simply for the reason that the tumor grows beyond its level, so that by pushing back the former the nipple, as a rule, again partly protrudes; but in carcinoma, the mammilla is permanently retracted, because the contracting growth draws it toward itself by shortening the milk ducts which terminate at its extremity; and this process is the more apparent when the neoplasm develops in the immediate vicinity of the lacteal sinuses, or when the nipple itself is infiltrated and becomes the seat of cirtricial contraction. A retracted nipple was observed by Gross in not less than 52 per cent. of his cases, the large proportion being due to the fact that in 75 the carcinoma was seated in the immediate vicinity of the mammilla and areola. As the nipple is sunken in only 5 per cent. of the noncarcinomatous neoplasms, it is a valuable sign. In some cases there is a spontaneous discharge from the nipple, the fluid being either watery or bloody, or thick and lactescent, while in some cases there was a thick, milky fluid, the so-called "cancer-juice." In one-third of the cases the discharge preceded the detection of the tumor.

Pressure upon the nervous filaments which supply the breast, causes the pain of which patients so commonly and so early complain; it is usually of an intermittent, darting, pricking, or neuralgic character at the outset, becoming more constant and aggravated with the progress of the disease, and particularly when the skin is extensively invaded and ulcerated, the lymphatic glands infiltrated, and the arm swollen, until finally, it may be atrocious; extending in various directions, as, for example, to the shoulder, neck, back and arm, interfering with sleep and nutrition, and hastening a fatal termination.

In 4 per cent. of all cases there is absolutely no suffering whatever; in 8 per cent. there is merely a sensation of discomfort or weight; while in 88 per cent. there is real pain, varying greatly in intensity and character. Before the expiration of a year or thirteen months after its first observation, marked changes ensue; indicating, first, local infection, or regional dissemination, through the extension or growth of young epithelial cells, along the course of the lymphatics and perivascular lymphsheaths, into the adjacent tissues; and the transfer of the cells by the lymphatic vessels to the associated lymphatic glands. In their chronological order, there are invasion of the skin, the glands, the muscles of the chest, the ribs, the pleura, the anterior mediastinum, and the opposite breast. Infection of the neighboring tissues shows itself in the form of adhesion or fixation of the tumor to the skin, and walls of the chest, or as distinct nodules visible to the naked eye when superficial, or are detected during operation. Of over 1,400 cases in which this point is noted, invasion of the skin, as evinced by its adhesion or discoloration, was met with in 559, or 42 per cent. by the formation of tubers in 152, or 10 per cent., and by ulceration in 338, or 23 per cent., so that, omitting the cases in which two or more of these features are present, it is involved in 62 per cent. of all instances. Generally, the skin is adherent, thinned, and of a purplish, bluish-red, or dusky red tint, with enlargement of its small vessels, and the seat, possibly, of superficial and limited desquanmation, conditions preceding ulceration.

Nodules may present the appearance of flat, irregular plates; but they are usually shot-like or biconvex, frequently attain the size of a small hickory-nut, and are covered by discolored skin; when the subcutaneous connective tissue is simultaneously involved, they form masses extending beyond the middle line of the chest, involve the opposite breast, ulcerate, produce great suffering, and finally convert the front and sides of the thorax into an offensive mass. Should this not occur, the affection is termed lenticular cancer by Schuh, and pustular or disseminated scirrhus by Velpeau, and the disease may extend to the neck, shoulder, arm, abdomen and back; or by the union of the nodules with the main tumor, and by their progressive growth, the breast is converted into a large vessel "bossed mass." Although invasion of the skin is the earliest perceptible sign of local malignity, it may be delayed even for seven or eight years. I have met with it as early as three weeks; but the average date of its appearance is fifteen months. Although ulceration is one of the phenomena of skin infection, many ulcers result from fatty and disintegrating changes which take place in the substance of the tumor itself, making the process superficial or deeply seated. In the former event the thinned and discolored skin is at first cracked, fissured, excoriated, or eroded, and covered by thin crusts. Ere long a sore forms, which has a pale granulating base, and discharges a thin, offensive fluid. Now and then it heals over, the cicatrix being thin, tense, red and traversed by small vessels; or healing occurs in the first breach of continuity, while the ulceration continues to spread. In the second form of sore, or that which ensues from the breaking down of the tumor, there is a deep, ex-

cavated, or crater-like cavity, with irregular, discolored, full, indurated, and everted edges, and a base which is usually formed of hard granulations, and which discharges a puriform, bloody, foul, or ichorous fluid. The ulcer of carcinoma differs from that of the other mammary neoplasms; in myxoma and sarcoma especially, the sore may be deep and excavated, and its walls composed of disintegrating tumor tissue; but the ulcer of the simple growths is essentially a fungating one.

Next comes the formation of nodules in the pectoral and intercostal muscles and ribs, corresponding to the fixation or adhesion of the tumor to those structures. Of 1,000 cases in which this is noted, the mamma was mobile in 860, and more or less closely adherent in 160, or 15 per cent. Fixation of the growth usually ensues six months after adhesion to the skin, and two months after ulceration. I have myself met with it as early as the third and as late as the twenty-sixth month; usually coexisting with infection of the lymphatic glands, the presence of which may be suspected, if they cannot be felt, whenever fixation of the tumor appears.

Implication of the other breast is a late sign appearing on an average, at 29 months, although it is witnessed as early as four months, and even as late as six years. Of 28 cases of which I have the full particulars, in 24 it was preceded by enlargement of the glands; and in 13 of these there were also nodules in the skin, and ulceration was present in the original tumor in 7. In two cases there was no glandular involvement, but here the disease was preceded by cutaneous tubers and by ulceration of the primary growth. In two there were no complications. Hence we learn that carcinoma evinces a remarkable disposition to infect the adjacent tissues, and that it progresses at first toward the surface; the skin is invaded in 66 per cent., deep attachments ensue in 15 per cent., and the opposite breast suffers in 3 per cent. of all cases. The occurrence of local dissemination is, moreover, indicated by the formation of circumscribed nodules in the skin in 10 per cent., in the paramammary connective tissue in 8 per cent., in both of these situations, as in the cuirass form of cancer, in 4 per cent., in the pectoral muscles in 10 per cent., in the intercostal muscles in 1 per cent., and, finally, in the ribs in 3 per cent. According to Gross we may look for extension to the superficial fascia and skin in 16 months, for ulceration in 20 months, for fixation to the chest in 22 months, and for invasion of the second breast in 30 months. These facts, elicited by clinical and post-mortum evidence, have an important bearing upon the question of glandular infection and the formation of secondary growths in the internal organs. Glands was met within 52 per cent., and metastases were discovered in 73 per cent. Of the 174 cases, on the glands was met with 52 per cent., and metastases were discovered in 73 per cent. Of the 174 cases, on the other hand, which were free from local infection the glands were affected in 42 per cent. and metastases had occurred in 45 per cent. The occurrence of glandular and systemic infection is greatly favored by local dissemination; the reproduction of carcinoma in the associated lymphatic glands is one of the most practically interesting of its malignant features, exerting an influence upon the disease, upon the formation of metastatic deposits, and upon the final issue after operative precedures. As the loose collections of cells are contained in the lymph spaces of the mammary gland, which are the radicles of the lymphatic vessels, one can readily conceive how easily, and, indeed, inevitably, the young epithelial elements are transported to the lymphatic glands in the axilla and above and below the clavicle, where they implant themselves, proliferate, and reproduce.

The affected glands delay for a certain period metastatic deposits, and constitute new foci of local and general infection; the cells of the enlarged glands behave like the primary tumor, invading the surrounding tissues and infect the adjoining glands and the viscera. Just how often the glands enlarge as a result of inflammatory or irritative hyperplasia as is witnessed in other mammary neoplasms, I am unable to say; but it is very certain that they are not always carcinomatous. A point of interest that must have attracted the attention of every surgeon, is, that the seat of the carcinoma exerts no influence upon the frequency, or the date of the appearance, of the lymphatic tumor; the glands are not involved earlier or oftener when the original growth is near the axilla, or when it occupies the inner periphery of the mamma. It is an established fact that the cases uninfluenced by operation, in which the gland contamination does not vence itself until late, pursue a more chronic course, and do not perish nearly so quickly as those in which the glands are infiltrated early in the affection, and statistics show conclusively not only that the chances of removing the entire disease are greatly lessened when the glands are enlarged, but that, as in the former instance, the patient succumbs much sooner, and that recurrence is more rapid.

Following the infection of the lymph glands the cells pass into the circulatory system and are transported to the viscera, the bones, and other tissues, in which they proliferate, reproduce the likeness of the primary growth, developing metastatic growths. General dissemination may, however, manifest itself without antecedent glandular infection, but such a course is exceptional. Thus, of 61 post-mortem inspections in which systematic secondary tumors were discovered, the intervening glands were involved in 52 or 85 per cent.; in 2 or 3 per cent., there were merely tubers in the skin and pectoral muscle; while in 7 or 11 per cent., there were no primary complications whatever. Hence, in about 1 case in every 7, metastatsis occurs without implication of the glands, from which it appears that infection may take place through the blood-vessels, and that the absence of enlarged glands affords no absolute guarantee that the viscera are not already invaded. Of the frequency of metastic deposits our knowledge is not satisfactory, for the reason that it is by no means easy to follow our cases or to obtain post-mortems.

Depilatory.—The Hospital Formulary of the Dept. of Pub. Char. has published the following:

℞. Barium Sulphide.....25 parts.
Powdered Soap ..... 5 "
Flour ..... of each.....35 "
Venetian talc.

M. Sig. Add one teaspoonful to three teaspoonfuls of water; apply with a shaving brush, evenly. In five minutes moisten with a sponge; five minutes later the hair can be removed by careful washing.

Benzaldehyde .....q. s.

FUNCTIONAL DISEASES OF THE LIVER.

BY LOUIS FAUGERES BISHOP, A.M., M.D.,

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This afternoon I want to take up briefly the functional diseases of the liver. We have a good many cases in which the liver has been much enlarged, and last week I showed you a case of cirrhosis of the liver, which, of course, represents a very grave disease. The slight or functional diseases of the liver are perhaps more important than these graver lesions, because they are so much more frequent.

I like to differentiate two forms of functional disease of the liver. In one form there is true biliousness, in that there is actually an excessive secretion of bile. The bile, as you know, is secreted in the liver, passes into the intestine where it takes part in digestion, and having served its purpose there is reabsorbed and enters the liver again to traverse the same circle, being used over and over again.

Now, when people overeat and in this way overstimulate the liver, bile is formed in larger quantities than is necessary, and since this is a secretion used over and over again the amount in the system really becomes too great and the individual is really bilious in the true sense of having too much bile.

This form of bilousness is best treated by some drug which will cause the bile to be thrown out into the intestine and then by some other drug that will cause it to be passed along so quickly that there will not be time for it to be reabsorbed. This is the principle of the treatment of biliousness, calomel being the drug used to cause the bile to pass into the intestines, and then a laxative is given to cause the bile to be carried off. True biliousness is not such a very common condition and is easily treated in the manner outlined above.

Much more serious and more difficult to deal with is functional inactivity of the liver—that is, when the liver is underactive and torpid. It is that form of biliousness, so-called in which the liver does not produce the proper amount or quality of bile and in which that part of digestion dependent for its proper performance upon the secretion from the liver, is poorly carried on. This is a much more chronic and difficult condition to deal with, in that the person who is born with or has acquired a torpid liver, is always apt to have a more or less defective digestion, many being incapable of digesting more than a very moderate quantity of food and being easily upset by any slight excess of sugar, starch or fat. This functional inactivity of the liver is a very distressing condition, and those who suffer therefrom are truly to be pitied.

It is most important to distinguish between these two causes of trouble, for we frequently find people who are bilious in the true sense of the term, who overeat, thus overstimulating the liver, causing the formation of an excess of bile, advising the other people who have torpid livers to take calomel and purges all the time. Those in the first class of cases are benefited by calomel and purging, while this form of treatment would not be at all applicable to those of the second class, as it would have a tendency to weaken them when they need food to the greatest extent that they are capable of digesting it. Remember, then, that there are these two classes of cases, and do not expect every case to respond to the same treatment.

The torpid liver is best treated by all those things which impart tone to the general system—by exercise, nux vomica and plain, nourishing food. It is important in this class of cases, as well as in the first mentioned, that they be very abstemious in the use of alcohol.

The case which I show you to-day is one of acute catarrhal jaundice. It is an interesting condition, because it represents the result of a mechanical obstruction of the bile ducts. The view is held that this is ordinarily the result of the extension of a catarrhal inflammation of the stomach and small intestine to the bile ducts. Once in a while in a case of this kind it is possible to predict that the patient will develop jaundice. I remember seeing such a case last Summer—it was that of a young woman, who, while at the seashore developed marked tenderness and pain; the temperature and everything else was so characteristic of an inflammation of that part of the duodenum, which is in the neighborhood of the bile duct, that I was able to predict a week in advance the development of acute catarrhal jaundice.

In acute catarrhal jaundice the bile, instead of following the circle, which I mentioned previously, is dammed back in the bile ducts, is absorbed into the general circulation and circulates in the blood—the result is that all the tissues of the body are stained with yellow pigment—the skin, whites of the eyes and the excretions. The urine becomes very dark in color from the passage of bile-coloring matter into it. The bile irritates the small nerve endings in the skin and the patient suffers markedly from itching. The skin becomes very dry, and there is a marked effect upon the nutrition of the patient, emaciation being very rapid, much more so than can be accounted for by the interference with digestion.

This young man is 25 years old and was well until five days ago, when he was attacked with disturbance of the stomach; he had soreness and tenderness over the stomach and the lower border of the ribs on the right side in front. He has noticed now that he is slightly jaundiced, and in confirmation says that for the past two days his urine has been very highly colored. It is the mildest possible case of gastric disturbance with jaundice. The chances are that it will all clear up and he will get well very promptly.

Jaundice may, however, be a very serious condition. We have had a good many cases here from time to time, in which there has been carcinoma of the liver with obstruction to the flow of bile, and these patients, as you will remember, have been terribly emaciated, and have suffered much from itching of the skin.

—Doctors give away more than any other class of men on earth. It is stated that gratuitous services of physicians last year to one large Philadelphia hospital amounted to over $500,000 at ordinary fees. Upon this the Wisconsin Medical Recorder remarks that "if any individual or any society had given a half million dollars to any cause the fact would have appeared in all the dailies with large headlines, but this free work of physicians has come to be considered as too common for notice. And this was only one hospital in one city. How enormous this free work in the whole country must have been last year!" Much of this free work was necessary and commendable, and much of it was not."

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When Nature has work to be done, she creates a genius to do it.—Emerson.

THE UNIFICATION.

WITH no spirit of exultation we want to congratulate the profession in this, we were going to say, state—but it should be country, upon the result of the recent meeting of the State Medical Society at Albany.

An apparently impassable chasm which has divided the medical profession for twenty-two years, has been absolutely closed, and there is scarcely a trace remaining, to show where it was, or why it existed. We have to thank Dr. Reed, by whom, more than by any other, the condition has been made possible. It is to his masterly presentation of the subject, at the New Orleans meeting of the American Medical Association last spring, that we owe so much. It will be remembered that this body practically accepted the views of our State Society by its action in repealing the Code of Ethics which was the cause of the rupture and which has been so troublesome to close.

The atmosphere of the meeting is said to have been all that could be desired, the long and exhaustive report of the Conference Committee was patiently listened to, because of the momentous issue at stake. There seemed to be but one thought predominant, and that was the solidarity of the profession. The excellent and useful committee having the matter in charge, has been continued to complete the details of the union. The legislature has promptly passed the permissive act, and the Governor has just as promptly approved it. The event marks the beginning of the reorganization of a large body of medical men, and its usefulness cannot be estimated at this juncture.

We must admit that this episode with all its pangs, has advanced the subject of medical education, has broadened the minds of medical men, has resulted in the overthrow of an odious and demoralizing code, and has placed the profession upon a much higher plane in every respect than it formerly occupied.

Now, we must be equal to our new environment with its emergencies and responsibilities. With harder work and increased mental liberality, much more can be accomplished yet, in broadening and purifying the profession in thonght and action.

It rests largely with the American Medical Association to conduct affairs in such a manner as to hold the profession together. Intolerance, medical politics, personal aggrandisement and animosities, commercialism, petty interpretations and other antagonisms are points to be avoided. The management of the National Society must be upon a broad and liberal scale, far above reproach. It should not be parental, but brotherly, helpful and kindly, so that none may be antagonized! With the manifestation of proper spirit in this quarter, much depends. Let us hope that the wisest council may prevail, and that we may be saved another similar catastrophy, to the end, that we may go on indefinitely in bringing the greatest good to all concerned.

Dr. Reed has most eloquently voiced the higher sentiment of the profession, in his address before the Kansas City Academy of Medicine when he says: "Let us remember that all co-operative endeavor becomes effective only when approached in a spirit of concession. The art of politics has been defined as the art of compromise, and, my friends of the profession, we, in the sense that I have attempted to define, are in politics. This fact has been recognized all over the country and in the great work of organization, with not more than two exceptions, the spirit of compromise has been so dominant that prejudices, predilections, prerogatives and even minor principles have been willing and gladly subordinated to the greater principles for the conservation of the greater good. This spirit, the very soul of fraternity, coupled with the spirit of industry, the spirit of culture, the spirit of patriotism, must be kept in the ascendant if we, as a profession, shall maintain our just position and discharge our full duty as citizens of the Great Republic."

Where is the "Moses" that can unite the "Schools" of medicine?

THE RELATION BETWEEN PROFESSIONAL EDUCATION AND GENERAL EDUCATION.

AS the struggle for existence grows more intense, this question becomes more and more practical. Shall the education of a chemist—or a physician begin in his early teens, or shall he acquire a general education first upon which to superimpose his professional training? Under the influence of Germany, the instructors of England and America have developed a tendency to increase the length of time devoted to professional education. Especially in America has this tendency been developed in the past fifteen years. The four year course in medicine has now become the universal plan for all first class American Medical Colleges. This fact does not seem yet to be appreciated abroad. In a recent work by a continental writer, there was given as sluring a notice of American medical education as the same gentleman gave it fifteen years ago, showing that he is either ignorant of his subject, or willfully prejudiced.

As pointed out by President Hadley of Yale University in his recent address before the Medical Society of the State of New York, at Albany, the physician needs to be trained in more kinds of scientific

study than almost any other man in the world. He must be acquainted with physics and chemistry; he must be familiar with physiology, pathology and morphology, each branch being a complete science in itself. Consequently the unfortunate student of medicine has a tremendous field to cover, and if we insist that he complete the old fashioned college course in addition it seems to postpone indefinitely his chance of becoming a practitioner with sufficient work to enable him to live.

Fortunately, there has been a great change in the past fifty years in the collegiate curriculum. At the time of the Civil War classics and mathematics with some elementary science and history were supposed to be sufficient knowledge for the average man, while the medical schools were occupied with the simplest details of practice. Now-a-days, it is different; in any first class university, the man who would be an engineer can obtain an excellent knowledge of mechanics, while the student intending to study medicine can familiarize himself with chemistry, anatomy, physics, physiology, and the collateral sciences which form a large part of medical study.

President Hadley, from his large experience in the matter thinks that this work should be done in the college course, because he feels that such a course gives a man a breadth of sympathy and brings him into an atmosphere which is more stimulating than the professional course. He acknowledges that there is more intensity of application in the professional school; that it saves time and fits the student more speedily for his work, but he thinks that it is done at a considerable sacrifice. He thinks that the danger of commercialism in medicine is greatly increased by a purely professional course; that it results in an undue exaltation of those elements of study and practice which form the basis for triumphs of technical skill. Therefore, President Hadley advises that the preliminary work for their several callings should be done by men while they are yet in the broader atmosphere of the college, rather than in the narrower atmosphere of the professional school. The loss of time will be more than compensated for, by the increased gain in sympathy and enjoyment, in the spirit of progress, and the power of using such professional work, which will accrue from such a change. He thinks that the separation of the scientific studies of the medical profession from those of other men, has had an adverse effect upon the moral and political influence of the profession upon the community. It has made the physicians a guild set apart from society, whereas, the old time country practitioner who was defective in scientific training, but who learned his medicine from contact with his fellow man, was a power in the community, and knew how to influence its life and conduct.

There is scarcely any profession in the world, except the clerical in which the individual stands upon his own responsibility as the medical, therefore, all that he can acquire of a broad, general education, the better will be his standing. It is the fashion to decry the classical education and call it old fashioned and out of date, but there are many men in the medical profession to-day who owe their charm and standing, largely to the sympathy and broadness which such a course gave them. As James Russell Lowell said twenty years ago at the opening of Bryn Mawr College, "Let a college education be a bread sweetener as well as a bread winner." That is the kernel of the nut. Let the coming physician not grow into a pure scientific machine; let him remember the fate of the two young physicians in the charming story by Conan Doyle, who despised the older practitioner in their town, as being unscientific and unreliable and yet, when both fell sick, each unknown to the other, called in the much despised older physician, feeling that his broadness of sympathy was what they needed.

OPTICIANS AND OPHTHALMOLOGISTS.

WE have just received a copy of a bill to be presented to the New York State Legislature, to regulate the practice of Optometry—defined as the employment of any means other than the use of drugs, for the measurement of the powers of vision and the adaptation of lenses. The bill follows closely the precedent established for the licensure of physicians and nurses, upon Regent's examination and with the customary exemption of those already in practice. Physicians, persons selling lenses on prescription of physicians or optometrists and those selling lenses without any claim to practicing optometry are exempted.

In a sense, any state regulation of a skilled industry is desirable, but it seems to us that the exemptions made, render the bill a very dangerous one.

First of all, we hold that the eye is not simply an optical instrument to be measured and to have its refractive imperfections compensated for by artificial lenses. On the contrary, it is a living organ, and a very valuable and delicate one at that. It is true that the average individual on finding that he has some visual defect, has in mind merely the purchase of glasses that will remedy that defect, just as he decides to have a tooth pulled or filled when it begins to give him trouble. It is also true that the average student of optics, with no medical training whatever, may usually be trusted to fit the proper glasses for an ordinary refractive error, just as a skilled mechanic, with the proper training; may be intrusted to pull a tooth without breaking the jaw, or even to excavate and fill a cavity, providing that no unusual condition exists. But, so far as the law has progressed in the control of matters pertaining to the diseased and imperfect human body, it has necessarily taken the ground that the sufferer has not the knowledge to decide for his best interests just what method of relief shall be applied. Neither can such necessary judgment exist in the mind of one who has not been trained to regard human tissues in the broadest scientific way. From the patient's standpoint it is simply a matter of getting a headache powder, of having a tooth pulled or filled, of having glasses fitted, about as one would fit a hat or a coat. From the medical standpoint, which is ultimately that of the patient's best interests, it is a matter of finding out what really ails the patient, and of applying methods best adapted to the conditions, without much regard for the patient's preconceived notions of the means of relief to be adopted. Curiously enough, the same man who expects his tailor not simply to sell him the goods which first strike his fancy and to make him a suit that will fit, but to aid his selection of goods, pattern and style in accordance with fashion and his individu-

al peculiarities, often regards the physician, ophthalmologist and dentist as one simply to carry out his orders.

We realize that, at present, anyone can sell lenses and pretend to fit eyes in New York. But a bad custom is better than a bad law. The ideal law should sharply discriminate between the authority of the medical profession and that of the ancillary professions—including pharmacists, masseurs, medical gymnastic teachers, nurses and opticians. The latter class should have no power whatever to command patients, but simply to carry out the orders of physicians. If this dictum seems unfair, it should be remembered that, subject to very moderate restrictions, every one has the choice of entering the medical profession.

The present bill might be accepted as a compromise if it merely conferred upon medically untrained opticians the powers which they practically exercise at present, and if it contained any compensating advantage. But the bill is not a compromise, in any sense. It graciously exempts physicians who are already exempted by their general license. It exempts the very persons who ought to be regulated and among whom the self-styled optometrists really belong, namely those who grind lenses on physicians' prescriptions. It goes farther in confirming by statute, the very doubtful right of selling lenses by any one, without knowledge of medicine or optics, provided only that he does not practice or claim to practice optometry.

This last exemption really robs the law of what little benefit it might confer, and limits its advantages to the very class who have introduced it, to a claim on the state for a certificate which may be used as the basis of advertising. Ordinary, decent selfishness ought to have dictated a different policy. The right to sell necessarily includes the right to adapt. The average purchaser asks the advice of the seller in regard to any unfamiliar article. It is absurd to suppose that the law will be construed so that the unlicensed dealer in lenses will simply place a tray before the customer and tell him to help himself.

In other words, this bill simply confirms, by statute, an undesirable and dangerous state of affairs; it corrects no abuse, and it helps the class who have introduced it only in the narrowest and most sordid way.

IMPROVEMENT IN THE CALCULATION OF MILK MIXTURES.

THE percentage method of infant feeding has gained the day in pediatrics and no up-to-date physician cares to depend on the inflexible formulas of the past. Still the necessity for mathematical calculations has stood in the light of the adoption of this method; for which purpose Westcott, in the New York Medical Journal for Feb. 6, 1904, has devised some simple methods of rapid calculation. His first step was the recognition of the fact that since a percentage formula indicates a definite ratio on a decimal basis between solids and the total quantity of the mixture, a corresponding ratio must exist between the component liquids, milk and cream, and the total quantity. Not to go into detail as to his calculations, he has devised a chart consisting of two discs, one lying upon the other. The upper disc has windows cut into it so that the proper proportions of milk, cream and fat percentages can be read off from the inner and outer ends of a ray marked by the desired proteid percentage. This little device should be put on the market for it will greatly simplify the physician's work in this direction, already complicated by the many improvements which are constantly being published in the medical press.

THE PENDULUM.

OUR attention has been called to this subject by a statement of W. E. Fothergill, in the "Practitioner," February, 1903, to the effect that "every one seems to have given up the idea that eclampsia is a renal disease."

We have heretofore considered the etiology of eclampsia somewhat at length and pointed out the inadvisability of retaining a name which merely described a symptom of many conditions and which failed to emphasize the presence of those conditions when the symptom did not appear, even if it were imminent or had actually been prevented by treatment. It is perfectly true that convulsions at or about the time of delivery are not always due to renal disease. They may be due to such absolutely extrinsic conditions as hysteria, epilepsy and drug poisoning. Then, too, we have, till recently, overlooked the importance of the liver, thyroid and intestinal bacteria in causing toxaemias, which may eventuate in eclampsia. At the same time we believe that the sane judgment of the profession is still that the kidneys have a great deal to do with the elimination of toxins, which tend to cause eclampsia, and even that eclampsia is distinctly uraemic in the majority of cases. Of course, we do not use the term uraemia in the sense of poisoning by urea, nor can it be ascribed to any one definite chemic substance.

Many years ago it was held that lactic acid was the normal secretion of the stomach. It has long been known that lactic acid is due to its content in meat, etc., or to derivation from carbohydrates by fermentation, but in spite of the common clinical knowledge that more or less lactic acid was present in all stomachs, when Boas announced that any considerable amount was pathognomonic of cancer, this dictum was quickly accepted. It required years of work by clinicians and pathologists to prove that a substance produced from food by half a dozen or more different germs was not indissolubly dependent upon a process not itself caused by any of these germs. We have returned to a saner view of the subject, and now realize that lactic acid excess means fermentation and stagnation, to which, of course, certain forms of cancer notably predispose.

A few days ago we had the pleasure of listening to a gynaecologist who spoke in the highest terms of Alexander's operation, yet discriminating among the cases for which this and other operations were best indicated. Some years ago, this same man denounced Alexander's operation on the ground that the round ligaments could not be found in the wound.

As we do not wish to follow the example of the penitent small boy who confessed only on his companions, we may admit having been converted from an early scepticism regarding diphtheria antitoxin,

although not going so far as some do, in discarding local antiseptic measures.

It is a good rule to avoid the use of the words always and never in discussing medical subjects, and to remember that we live in an age of remarkable discoveries. A hint may be drawn from mathematics. No one has ever succeeded in squaring the circle or in trisecting an angle—that is by Euclidian geometry—and we understand that the French Academy of Sciences has refused to receive communications on these subjects. But, while the former problem has been demonstrated to be impossible, we believe that the trisection of the angle has never been demonstrated to be a geometric absurdity.

Medicine, being an art and an assemblage of odds and ends of various sciences, is not susceptible of absolute proof and disproof, and the dream of to-day may be the sober experience of to-morrow. What would the physician of 1400 have said if told that leprosy would practically disappear from Europe? The physician of 1500, that syphilis would become readily curable for any patient who would persist in treatment? The physician of 1750, that smallpox would become a disease of choice by the ignorant and obstinate? The physician of 1850, that cholera, typhus, relapsing fever and blood poisoning would become almost medical curiosities in a generation? The physician of 1875, that typhoid could be almost literally stamped out of a city so that the average physician would see only one case in two or three years? The physician of 1895, that yellow fever could be analogously reduced to a minimum? A few years ago, certainly within the recollection of physicians who still consider themselves young men, it required argument to prove that any disease was due to micro-organisms, and very few were at all definitely connected with any particular germ. To-day, on the other hand, bacteriologists who have an ambition to connect their name with the cause of an infection, must not only work diligently but rapidly, as there are barely a dozen clinical diseases left for this form of discovery.

We have overcome several bacteria and one protozoan—that of variola—with their own derivatives. We can kill or paralyze practically all, so long as they do not enter the recesses of the body, by mechanic and chemic means, which do not seriously injure the host. It is an unwise scepticism which holds that the limit has been reached, and that other germs cannot be successfully antagonized by immunization methods or by general antisepsis.

The X-rays have accomplished what, a few years ago, we would have considered impossible. We must look far ahead to the achievements of a perfected and regular apparatus. Probably we shall never be able literally to see the different layers of the tissues of the body through the unbroken skin, but we may reasonably expect that by accurate regulation of the intensity of the rays, we may secure a shadow of various calculi and soft parts which now seem transparent to the rays, and may secure photographic records of conditions at which we must now merely guess. Destructive surgery has seen its best days, and has been driven from accessible limbs to the abdominal cavity. Already internal medicine is having some measure of success in combating septic processes, and some hints are afforded that radiant force on the one hand and immunizing chemic combinations on the other, can accomplish much in the future treatment of cancer.

But it is well to remember that the pendulum bob, though a very useful article, travels farther than other parts of the clock; that we never know just where to find it at any particular moment; that it occupies a low position, and that no one looks at it to determine the actual progress of time. So, too, the physician or surgeon who swings from one extreme position to another, though perhaps a necessary component of the profession and useful in keeping things in motion, does not occupy an enviable position.

THE RELIEF OF THE VARIOUS FORMS OF HERNIA.

TWELVE years of consecutive work in any especial direction produces conclusions and beliefs that are valuable to the profession at large. Horwitz has just published his conclusions in ninety-one cases of operation for the relief of hernia, covering this period from which he draws a number of valuable conclusions. He divides the operations for the relief of hernia into three classes, as follows:

Herniotomy, an operation which is performed when strangulation exists; it is always an emergency operation, the mortality depending not only on the age character of the hernia and condition of the patient, but is greatly influenced by the length of time that the protusion has continued, as well as the amount of force put forth, and the duration and frequency with which attempts at taxis have been made. (2) The so-called "radical operation," in which the hernial protusion is not strangulated and an effort is made to effect a permanent cure. (3) A palliative operation, by which is meant surgical intervention in cases in which, owing to the large size of the hernia, atrophy of the muscular structures of the abdominal wall ensues; the large size of the hernial outlet and the changed condition of the inguinal canal exist, and a permanent cure following a radical operation is not to be hoped for. Nevertheless, in properly selected cases, individuals suffering from this condition are materially benefited by surgical interference. The general health improves; the obstinate constipation so frequently associated with this state is relieved. The annoying sensation of abdominal tension and pain disappears, the patient being able to keep the contents of the hernial protrusions within the abdominal cavity by means of an apparatus, an impossibility before surgical interference.

From a study of these cases Horwitz comes to the following conclusions:

The safety of the patient as well as the lowering of the mortality in strangulated hernia depends on gentle taxis being exerted for a short period, which, if unsuccessful, should be succeeded by an immediate operation. Herniotomy for the relief of strangulated hernia in the aged is not a dangerous operation, provided it is performed as soon after the constriction has taken place as possible. An inflamed hernia should not be treated with the taxis, but should be subjected to an operation. No one method of attempted radical cure is applicable to every variety of rupture. The Bassini is suitable to the largest majority. The Bloodgood for those in whom a large abdominal ring and weak or atrophied conjoined

tendon exist. The relief of special forms and conditions of hernia must be met by the ingenuity of the surgeon, selecting the operation to the indications presented. The palliative operation is applicable to a large number of selected cases of reducible hernia, when the protrusion cannot be kept within the abdominal cavity by means of a truss, and also in some forms of incarcerated hernia. A radical cure may be safely attempted on patients who have reached their sixth year and on those who have arrived at their sixtieth year. Individuals who submit to what is known as the "palliative operation" should continue to wear trusses after recovery. In cases not applicable to a routine method of operation the surgeon should strive to do what in his judgment would be the best means of effecting the removal of the entire neck of the sac on a level with the parietal peritoneum. He should, if possible, firmly close the opening in the peritoneum after the removal of the sac; he should obliterate the depression of the peritoneum in the vicinity of the internal abdominal ring, bring in apposition the structures, and close the apertures which from the canal through which the rupture protrudes.

An aseptic result following a radical operation with primary union, is essential to obtain a permanent cure of hernia. In cases of undescended testicle associated with hernia every effort should be made to save and transplant the organ. The method of operating for umbilical hernia suggested by Mayo is probably the most satisfactory for that variety hitherto suggested. Absorbable sutures are preferable to those of nonabsorbable material.

Many surgeons of the day regard taxis as practically of no value, preferring to operate in the event of suspected strangulated hernia at once, in view of the low mortality and the excellence of the results. Such a case is far less liable to future complications than if reduced and a truss reapplied. The tendency of the day in the treatment of hernia is undoubtedly toward surgical relief.

FIELD-SURGERY EXTRAORDINARY.

THE following account, in support of the contention that the native South African is less sensitive to pain than the European, and also will recover from injuries that would be fatal to his white brother, appears in the "Scottish Medical and Surgical Journal." It was obtained from a captain of Brabant's Horse by the writer, Dr. Boyd, of Edinburgh, who vouches for the narrator's veracity:

"In February of the same year and near the same place, after a tough fight, I discovered a wounded native crawling toward a pool of water near at hand. His wound was fearful! The abdomen was ripped open right across by a Snider bullet; his entrails protruding, one of the small intestines severed, the two ends trailing on the grass as he crawled along. My medicine chest, carried in my pocket, consisted of some pins and needles, white thread, a pair of sharp scissors and a two-bladed knife, one of the blades kept always very sharp. I turned the poor chap on his back, brought him water in my helmet, and began to do for him what I could. The puzzle was how to unite the severed intestine. Now, close at hand, growing out of the pool of water I spoke of, were a number of Spanish reeds. These reeds are a kind of exaggerated grass an inch in diameter when full grown, resembling the camboe in so far that there are 'knots' or joints every nine inches about. I chose one of these just coming out, and therefore quite soft and pulpy, half an inch in diameter; I cut a length two inches and a half with a 'knot' at the middle to keep it strong enough to bear fair pressure. With my sharp knife I fashioned it slanting inward, so as to enter the intestine easily; I carefully took the core out of the 'knot' and I had a tube of soft vegetable substance likely to bring my intended operation to a successful termination if recovery was at all possible. Going back to my patient, I inserted my tube in both the dissevered ends of the intestine, put in three stitches to keep them together, gathered all the bowels into the peritoneum, stitched it, stitched along the thick abdominal covering, and bidding my patient good luck I left him in charge of a native prisoner, whom I released for the purpose. Less than a month afterward, a stalwart, healthy-looking Kaffir appeared before me, bringing two fine cows which he wanted the "Inkosi" to accept. This Kaffir was my patient, perfectly recovered: the only trace of the wound left being a long scar on the abdomen."

RADIUM IN SOLUTION.

NOT a little interest attaches to the discovery just announced that the waters of the celebrated springs at Bath, England, contain radium, and therefore give off the radio-active emanations now being employed with marked success in the treatment of various intractable diseases, both internal and external. Physicians have always been of opinion—in opposition to the chemists—that drinking or bathing in the waters at a medicinal spring is a very different and more efficacious procedure than using the bottled or artificial waters away from it, and this discovery shows that they are right. Less gratifying to those conservatives in medicine who have been battling for almost a century against the "self-evident absurdity" of infinitestimal doses, will be the following statement from an editorial in the "Independent: "Radio-activity enables us to detect matter in amounts immeasurably less than can be determined by the balance or the spectroscope, and at the same time the matter possessing radio-activity has a physiological potency far beyond anything heretofore ascribed. In several of our hospitals promising experiments are being carried on by exposing water or solutions of fluorescent substances such as quinine to the action of a small tube of a radium salt in close proximity, and using the 'liquid sunshine' so obtained as a medicine." Attenuations such as these must be absolutely incalculable—no whit less transcendental than the "fluxion-potencies" so much discussed in certain circles some years ago. This indicates, of course, not that the latter preparations have any curative capability in themselves, but simply that the medicinal energy of a substance can no longer be regarded as necessarily in direct proportion to its bulk. In fact, scientific practitioners, the world over, are now constantly investigating and administering remedies in quantities inconceivably minute—not drug-remedies, divided in obedience to an arbitrary hypothesis, but the all-pervading forces

of nature, harnessed and directed so that their clinical manifestations are undeniable as the phenomena by which their existence is revealed. We still think that uranium is the best vehicle for administering radium.

BIBLIOGRAPHICAL

The American Year-Book of Medicine and Surgery for 1904. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from journals, monographs, and text- books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of George M. Gould, A. M., M. D. In two volumes. Volume I, including General Medicine. Octavo, 673 pages, fully illustrated; Volume II, General Surgery Octavo, 680 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Per volume: Cloth, $3.00 net; Half Morocco, $3.75 net.

The American Year-Book of Medicine and Surgery continues to maintain its high place among works of its class. Indeed, the issue of 1904, now before us, if anything, is even better than the excellent issues of previous years. Such a distinguished corps of collaborators which the editor, Dr. George M. Gould, has enlisted as his assistants is sufficient guarantee that the essential points of progress are brought out, and the collaborators' notes and commentations are excellent. In the illustrative feature the 1904 issue fully maintains its reputation, there being fourteen full-page insert plates, beside a number of excellent text-cuts.

There has been placed at the head of each chapter, a summary of the more noteworthy advances and discoveries made during the year, which adds greatly to the usefulness of the work. This Year-Book continues to stand in the front rank of its class.

A Text-Book of Legal Medicine and Toxicology. Edited by Frederick Peterson, M.D., Chief of Clinic, Nervous Department of the College of Physicians and Surgeons, New York; and Walter S. Haines, M.D., Professor of Chemistry, Pharmacy and Toxicology, Rush Medical College, in affiliation with the University of Chicago. Two imperial octavo volumes of about 750 pages each, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Per volume: Cloth, $5.00 net; Sheep or Half Morocco, $6.00 net.

This work presents to the medical and legal professions a comprehensive survey of forensic medicine and toxicology in moderate compass.

For convenience of reference the treatise has been divided into two sections, Part I and Part II, the latter being devoted to Toxicology and all other portions of Legal Medicine in which laboratory investigation is an essential feature. Under "Expert Evidence" not only is advice given to medical experts, but suggestions are also made to attorneys as to the best methods of obtaining the desired information from the witness. The Bertillon and Greenleaf-Smart systems of identification are concisely and intelligently described, and the advantages of each stated. An interesting and important chapter is that on "The Destruction and Attempted Destruction of the Human Body by Fire and Chemicals;" for on the determination of the human or animal source of the remains frequently depends the legal conduct of a given case, and the guilt or innocence of the accused. A chapter not usually found in works on Legal Medicine, though of far more than passing significance to both the medical expert and the attorney, is that on the medicolegal relations of the X-rays. The responsibility of pharmacists in the compounding of prescriptions, in the selling of poisons, in substituting drugs other than those prescribed, etc., furnishes a chapter of the greatest interest to every one concerned with questions of medical jurisprudence. Also included in the work is the enumeration of the laws of the various States relating to the commitment and retention of the insane. In fact, the entire work is overflowing with matters of the utmost importance, and expresses clearly, concisely and accurately the very latest opinions on all branches of forensic medicine and toxicology.

Rabies: Its Place Amongst Germ-Diseases and Its Origin in the Animal Kingdom. By David Sime, M.D. Pp. 290; large octavo. New York: The MacMillan Company, 1903.

This work is founded upon the wide researches of Pasteur and others in this field, and the subject is profoundly studied in a three-fold direction, viz.: Its Causation in the Individual Organism; Its Place Amongst Germ-Diseases, with the End of Bacterial Agency in the Animal Economy; and lastly its origin in the Animal Kingdom. In the consideration of the place of rabies amongst germ-diseases, the malady is treated and expounded as essentially a preventive rather than a prophylactic disease, these being described as the two great orders of the entire realm of germ-disease. The malady is viewed as primarily, a germ-disease of the intensifying rather than of the attenuating division of the animal kingdom; and the universally excellent results which follow the use of the dog muzzle, are accounted for and explained. The text is classically written, and covers a vast amount of research and profound study. The book is worthy a place upon our shelves.

Diseases of the Eye. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia, Pa.; Ophthalmic Surgeon in the Medico-Chirurgical Hospital. With Five Colored Plates and Two Hundred and Ninety-six Illustrations in the Text. New York and London: D. Appleton & Co., 1904. Pp. 584. Octavo.

The author has given in this volume a digestive summary of the known facts of his specialty, in a manner to be understood by the student and the general practitioner. The arrangement is unlike that of most text-books on this subject, the diseases being considered according to the structures attacked in the order in which they are encountered in going from without inward. The treatment accords with the most recent investigations and experiments. The general practitioner will find in the book all he requires in his work on this subject, and the student will be able to lay the foundation for a special study in this department should he desire. There is no doubt about its being an excellent text-book.

Diseases of the Nervous System: A Text-Book for Students and Practitioners of Medicine. By H. Oppenheim, M.D., Professor at the University of

Berlin. Translated and Edited by Edward E. Mayer, A.M., M.D. Second American Edition, Revised and Enlarged, with Three Hundred and Forty-three Illustrations. Price: Cloth, $5.00. Philadelphia and London: J. B. Lippincott Company, 1904. Pp. 953. Octavo.

A new edition of this valuable work has enabled the author and the American editor to bring the subject to date. The book contains observations which have not been published elsewhere, and the work is not only a judicious review of neurology, but also an original source of information. The size has been increased by more than fifty pages, and many illustrations have been added. The book was written for the general practitioner, and he has found it most useful.

The Complete Medical Pocket-Formulary and Physicians Vade-Mecum—Collated for the Use of Practitioners. By J. C. Wilson, A.M., M.D., Physician to the German Hospital, Philadelphia, etc., etc. Third Revised Edition. Price, $1.75. Thumb Indexed, $2.00. Philadelphia: J. B. Lippincott Company.

This little book contains upward of 2,500 selected prescriptions, covering the whole range of practice, arranged for ready reference under an alphabetical list of diseases; also a special list of new drugs, with their dosage, solubilities and therapeutical applications. There are also formulæ for suppositories and for hypodermic medication; a list of drugs for inhalation; a table of poisons, with their antidotes; a posological table; a list of incompatibles; a table of metric equivalents; a brief account of external antipyretics, disinfectants, medical thermometry, the urinary tests and much other useful information. The little book will be found suggestive and most useful.

The Prevention of Consumption. By Alfred Hillier, M.D., C.M., B.A., Secretary of the National Association for the Prevention of Consumption (London), Member of the Council of the International Association for the Prevention of Tuberculosis (Berlin), Visiting Physician to the London Open-Air Sanatarium. Revised by Professor R. Koch. With illustrations. Pp. 226; 12mo. Longmans, Green & Co., London and New York. 1903.

This little book deals with the subject of tuberculosis as a great social problem, which should interest the thinking public, and even the public at large, which needs such education in self-defense. This is another of the many books on this subject for the lay reader, and the matter is well treated for this purpose by a competent hand. All these books may be read with profit by the great majority, as they are useful in prophylaxis in a most dread disease.

A Study of Man and the Way to Health. By J. D. Buck, M.D. New Enlarged Edition. Pp. 260: 12mo. Cincinnati, Ohio: Robert Clark & Co. 1904.

The object of this book is to show that there is a modulus in nature and a divinity in man, and that these two are in essence one, and that therefore, God and nature are not at cross-purposes.

In studying the subject from its physical side only, the barest outlines of physics and physiology have been attempted, sufficient, however, to show the method suggested and the line of investigation to be pursued.

The author shows a deep interest in all that relates to human nature, or that promises in any way to mitigate human suffering and increase the sum of human happiness. He evidently has no peculiar views that he desires to enforce, but rather, to make a different use of the material we already have to a better end. His purpose is a reconciliation of Science and Religion, on the ground that true religion, true philosophy and true science are ever the handmaids of truth. The student of psychology will find the book worthy his attention.

The Practical Medicine Series of Year Books—Issued Monthly—The Eye, Ear, Nose and Throat. Edited by Cacey A. Wood, C.M., M.D., D.C.L.; Albert H. Andrews, M.D. and Gustavus P. Head, M.D. December, 1903. Vol. III. Chicago: The Year Book Publishers.

This series of books is just what is required to obtain a birds-eye view of the current literature, and in many instances is all that is necessary. The present volume, devoted to the Eye, Ear, Nose and Throat affections, is especially interesting. The books are inexpensive and within the means of any one, the ten volumes covering the year costing only $5.50.

The Treatment of Fractures: With Notes Upon a Few Common Dislocations. By Chas. L. Scudder, M.D., Surgeon to the Massachusetts General Hospital. Fourth Edition, Thoroughly Revised, Enlarged and Reset. Octavo volume of 534 pages, with nearly 700 original illustrations. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Polished Buckram, $5.00 net; Sheep or Half Morocco, $6.00 net.

Four large editions of this work in less than four years testify to its value. The book is intended to serve as a guide to the practitioner and student in the treatment of fractures of bones. The student sees the actual conditions as they exist in fractured bones, and is encouraged to determine for himself how to meet the conditions found in each individual case. Methods of treatment are described in minute detail, and the reader is not only told, but is shown how to apply apparatus, for as far as possible, all the details are illustrated. This elaborate and complete series of illustrations constitutes a feature of the book. There are 688 of them, all from new and original drawings and reproduced in the highest style of art. Several chapters of special importance are those on Gunshot Fractures of Bone; The Röntgen Rays and Its Relation to Fractures; The Employment of Plaster-of-Paris, and the Ambulatory Treatment of Fractures.

In this edition many new illustrations have been added, thus increasing the accuracy of the work. The text has been thoroughly revised, thereby bringing the book absolutely abreast the times. X-ray plates of the epiphyses at different ages have been arranged. These will be found of value, not only as an anatomical study, but in the appreciation of epiphyseal lesions. An important addition is that of a chapter upon a few Common Dislocations. This chapter, like the rest of the book, is amply illustrated, and the accepted methods of treatment described.

The Pathogenic Microbes. By M. Le Dr. P. Jousset, Physician to the Hospital St. Jacques, Paris. Authorized translation by Horace P. Holmes, M.D. 192 pages. Cloth, $1.00. Postage, 8 cents. Philadelphia: Boericke & Tafel, 1903.

The author in this little book presents his studies of the different states under which the pathogenic microbe presents itself and the functions and rôle it plays in pathology. He also gives the history of the toxines, anti-toxines and the alexines. He demonstrates the specificity and polymorphism of the microbes, and studies the microbe in act, pathogeny, immunising and therapeutic. The book will be found

useful to the beginner in the study of this subject.

The Blues (Splanchnic Neurasthenia) Causes and Cure. By Albert Abrams, A.M., M.D., (Heidelberg), F.R.M.S., Consulting Physician, Denver National Hospital for Consumptives, the Mount Zion and the French Hospitals, San Francisco; President of the Emanuel Sisterhood Polyclinic; formerly Professor of Pathology and Director of the Medical Clinic, Cooper Medical College, San Francisco. Cloth, 240 pp. Illustrated. Postpaid, $1.50. New York: E. B. Treat & Co.

The object of this volume is to direct attention to a new and heretofore undescribed variety of nerve exhaustion, which the author has designated as Splanchnic Neurasthenia. This special form of nerve weakness is characterized by paroxysms of depression of varying duration, and is popularly known as "the blues."

Among the many resources of nature to combat this tendency, it is claimed that the vigor of the abdominal muscles is paramount.

"There are a large number of impaired conditions which really owe their genesis to a congestion of the intra-abdominal veins; such affections are essentially forms of splanchnic neurasthenia, and often produce only local symptoms, confined to the abdominal sympathetic, and may never extend to implicate the central nervous system. These are especially amenable to the treatment suggested in this book, all of which is based on purely physiological reasoning," says the author.

A Handbook on the Prevention of Tuberculosis, being the first annual report of the Committee on the Prevention of Tuberculosis of the Charity Organization Society of the City of New York. Pp. 388. Octavo. The Charity Organization Society, 1903.

This volume will be useful to any one interested in the work of which it treats, especially where similar effort is about to be started; it will afford details as to how it may be prosecuted.

The Self-Cure of Consumption Without Medicine, with a Chapter on the Prevention of Consumption and Other Diseases. By Chas. H. Stanley Davis, M.D., Ph.D., Physician to the Curtis Home for Old Ladies and Children, etc. Pp. 176; 12 mo. Price, 75 cents. New York: E. B. Treat & Company, 1904.

The object of this book is to show how consumption from its first beginning to its last stages, before actual decay of the lungs takes place, can be cured in at least ninety-five per cent. of the cases, and this without the use of medicine. This book should go to the general public, to whom it properly belongs, and it may be commended by the profession as helpful. The text is well and concisely constructed, and the methods advised are practical and useful.

International Clinics: A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Largngology, Hygiene and Other Topics of Interest to Students and Practitioners, by Leading Members of the Medical Profession Throughout the World. Edited by A. O. J. Kelly, A.M., M.D. Vol. IV. Thirteenth Series. 1904. Philadelphia: J. B. Lippincott Company. Pp. 321. Price: Cloth, $2.00.

The volume is filled from beginning to end with practical material fresh from the field of investigation by masters in the profession. If we had room we would insert here a list of the titles of the articles with the author's names, but these can be readily obtained of the publisher upon request. The publication is well and favorably known, and it should be sufficient to announce its issue. No medical library can be complete without it.

A System of Electro-Therapeutic Text-Books in Five Volumes of the International Correspondence Schools, Scranton, Pa. International Text-Book Company, Scranton, Pa.

These volumes cover the whole field of Electro-Therapeutics as applied in medicine and surgery today. The text has been prepared by experts on the respective subjects, for the purpose of teaching by correspondence, and each volume contains a series of questions covering all the branches of which it treats. For those who take this course, the work is absolutely necessary, and any student of electricity will find the volumes most excellent text-books.

The Relation of Socieal Diseases and Marriage. By Prince A. Morrow, A.M., M.D., Emeritus Professor of Genito-Urinary Diseases in the University and Bellevue Hospital Medical College, Surgeon to the City Hospital, Consulting Dermatologist to St. Vincent's Hospital, etc., New York. In one octavo volume of 390 pages. Cloth, $3.00 net. Lea Brothers & Co., Publishers, New York and Philadelphia, 1904.

The important bearing of this vital subject upon humanity at large is so great that we must welcome a work of this kind, written upon a high and broad plane, by an author equal to the task.

Venereal diseases in their origin, and especially in their far-reaching pathological effects, strike at the very root of race perpetuation. They blight the mental, moral and physical welfare of society as does no other agency. War, pestilence and famine are temporary; venereal diseases constantly ravage all grades of society.

Since unlawful relations between the sexes have come to be known generally as "The Social Evil," the author has adopted the term "Social Diseases" to indicate the infections most usually thus acquired. Their frequent infliction upon innocent victims through legitimate marital relations involves consequences which affect not only the health, but the peace, honor and happiness of the entire family, and the importance of venereal prophylaxis is beyond words.

This is the first comprehensive treatise upon the subject in our language, and it is fortunate for the profession and laity alike that an author of Dr. Morrow's achievements and established ability is the first to enter the field.

The work sets forth clearly the dangers introduced by venereal diseases into marriage—dangers to the wife, dangers to the offspring, and dangers which come from their morbid irradiations in family and social life. The fulfillment of the protective duty which has for its object the preservation of the helpless and innocent from infection, realizes the highest ideals of preventive medicine; and, while this duty devolves especially upon the physician, every member of the community is, and should be, the protector of the wife and mother and the preserver of the health and welfare of future generations.

An interesting chapter presents the author's views upon the "Medical Secret" and the exercises of professional discretion in restraining improper marriages, and gives valuable hints for the physician's guidance in many of the questions which so frequently arise.

In dealing with these problems there is required not only a thorough knowledge of these diseases in all their recently revealed relations, but also a knowledge of human nature, and a professional sagacity which is not taught in the curricula of the medical schools.

It is to furnish just this knowledge that the book has been written, and its perusal, in fact, its study, may well be recommended, not only to every physician, but to every thoughtful adult.

The Eye, Its Refraction and Diseases. The Refraction and Functional Testing of the Eye, Complete in Itself, in Twenty-Eight Chapters, with Numerous Explanatory Cuts and Diagrams. By Edward E. Gibbons, M. D., Assistant Surgeon of the Presbyterian Eye, Ear and Throat Hospital; Demonstrator and Chief of Clinic of Eye and Ear Diseases in the University of Maryland, Baltimore. New York: The Macmillan Company, 1904. Pp. 472. Large octavo.

The author has given in this volume the deductions of the various formulæ used in optics, in as simple a manner as possible, including the mathematics of the subject, as the student should be familar with the physics involved, for the proper understanding of this specialty. There is much new material and many diagrams, which make the work worthy the attention of those interested in the subject of which it treats.

RETROSPECTIVE THERAPEUTICS

Lemons in Purpura Hemorrhagica.—It is within the knowledge of almost every medical man ("Med. Press," Sept. 9, 1903,) that lemons, when sucked in the raw state, have succeeded in preventing the onset of an attack of hemoptysis, or at any rate warded it off. In some of the more severe varieties of purpura, the powers of the physician are often taxed to the utmost. It is encouraging, therefore, to learn that Pick, of Vienna, has successfully treated five cases of purpura hemorrhagica with lemons. Six to ten lemons a day were administered, and no ill effects were noticed, except that in the larger quantities they produced a mild purgation. Two of the cases had developed in connection with malaria, and it is interesting to note that in the Roman Campagna stewed lemons form a popular remedy against the disease, the fruit being sliced with the peel, and the filtrate taken by the tablespoonful. The lemon juice appeared to act promptly, though two of the cases of purpura were very severe. Hitherto the employment of the lemon in purpura has been chiefly confined to those cases in which there is also a scorbutic element, and here, together with lime juice, it has met with great success. When scurvy is out of the question it cannot be the anti-scorbutic properties of the lemon which give it its efficacy, but rather some astringent principle which acts directly upon the vessels.

The Paroxysms of Whooping-Cough Treated by Pulling the Lower Jaw Downward and Forward.—Sobel in the "American Practitioner and News" of August 15, 1903, reports his experience with this plan.

1. Pulling the lower jaw downward and forward controls the paroxysms of whooping-cough in most instances and most of the time.

2. The method is usually more successful in older children than in younger ones and in infants.

3. In cases without a whoop the expiratory spasm, with its asphyxia, is generally overcome, and in those with a whoop the latter is prevented.

4. As a single therapeutic measure for the control of the paroxysms it deserves a place in the treatment of pertussis, and is as successful as any single drug or even more so.

5. Mothers, nurses, and other attendants should be instructed in its use in order that the oncoming attacks, especially at night, might be arrested.

6. The manipulation is harmless, painless, and easy of application, without any of the ill effects of drugs; it offers a maximum good effect with a minimum derangement.

7. The only contraindication to its application is the presence of food in the mouth or esophagus.

8. The patients treated in this manner are less likely to suffer from complications and sequelae than those treated only medically; they emerge from the disease in far better condition, less exhausted, and less emaciated, because vomiting has been controlled.

9. It is advisable to try the maneuver in other spasmodic coughs and laryngeal spasms (laryngismus stridulus, pressure of enlarged cervical and bronchial glands, influenza, and in glottic spasm in catarrhal laryngitis), though experience would seem to show that it is far less efficacious in these conditions than in whooping-cough.

10. This method, being directed mainly to the control of the glottic spasm, does not preclude the advisability of sustaining the patient, guarding his gastrointestinal tract, establishing equilibrium in the nerve centres, and affording him every possible hygienic advantage.

11. It is particularly indicated in complications with diffuse bronchitis, bronchopneumonia, convulsions, epistaxis, subconjunctival or subcutaneous hemorrhage, or sublingual ulceration, and in those children who, by reason of tender age, the presence of rachitis, scrofula, or general debility are predisposed to serious sequelae.

Electric Treatment of Facial Neuralgia.—Zimmern,, before the French Electro-Therapeutic Society, called attention to the importance of persistence in the use of electricity in the treatment of neuralgia of the face. The surgical treatment of these cases is not devoid of danger, and the results are by no means certain. If one is content with the application of five or six milliamperes of current, continued for about five minutes, but little progress will be made. Bergonié for a number of years has employed electricity in quite large doses in the treatment of neuralgia, and with excellent results. He uses from 50 to 80 milliamperes —in fact, as large a quantity as the patient will support. A large electrode is employed, and each application is continued for an hour. The treatment is persisted in for at least three months. This persistent treatment usually results in a cure. Of seven patients presenting a type of severe neuralgia, accompanied by a tic, only one failed to improve. Of four cases having a grave type, without tic, three were cured and one was improved.

Dietetic Suggestions in Diphtheria.—In the "Medical News" of July, 18, 1903, Fischer, writing once more upon the ever interesting theme of diphtheria,

emphasizes the fact, too often ignored, that as a tissue and blood builder, no medication equals food. It is, therefore, imperative to support the general nutrition by proper feeding. Milk diluted with some cereal decoction, like oatmeal, barley, or rice, will be better borne than pure milk alone. Sometimes it is necessary to partially peptonize it to render it more absorbable. If the child is old enough the yolk of a raw egg can be added to the milk. Concentrated beef broth, chicken broth, clam broth, or oyster broth should be thought of. When feeding, it is a good plan to give some of this concentrated broth once in three hours, followed in three hours by a milk feeding, and so alternate. In this manner we give our patient milk once in six hours. Acid fruits, such as oranges, lemons, grapes, and cranberries, are very well borne. When acid fruits are ordered they should be given an hour before milk feeding. Older children can be given raw scraped steak, calf's-foot jelly, and ice cream, which is nutritious and pleasant. When it is difficult to feed by mouth, owing to excessive vomiting or to anorexia, or where intubation has been performed, then it is a good plan to let the stomach have absolute rest and to depend on rectal feeding. No more than two ounces should be injected at one time.

Milk, predigested, 1 ounce;
Starch-water, 1 ounce;
Laudanum, 1 minim.

To be injected slowly through a colon tube, after both colon and rectum have been cleansed by a soapsuds enema.

If the small nutritive enema is well retained, we can repeat the injection once every four hours, and add the yolk of a raw egg to the above formula. To assure proper assimilation of food requires attention to the bowels. The elimination of toxic elements can only take place by means of the bowels, kidneys and skin. Normally in febrile conditions there is a general torpidity of the emunctories. Thus it is apparent that a dose of calomel, citrate of magnesia, or an alkaline solution, like the milk of magnesia, or a laxative mineral water, will aid in the performance of these functions.

How Fruits Act.—The following ("Prac. Druggist") is a summary of the various uses of fruit in relieving diseased conditions of the body. The list is worth keeping. Under the category of laxatives, oranges, figs, tamarinds, prunes, mulberries, dates, nectarines and plums may be included. Pomegranates, cranberries, blackberries, sumac berries, dewberries, raspberries, barberries, quinces, pears, wild cherries and medlars are astringent. Grapes, peaches, strawberries, whortleberries, prickly pears, black currants and melon seeds are diuretic. Gooseberries, red and white currants, pumpkins, and melons are refrigerants. Lemons, limes and apples are stomach sedatives.

New Method to Determine the Quantity of Milk to Be Given to Artificially Fed Children.—Adam ("Jahrb. f. Kinderheilk," 1902, Vol. XVI., p. 29,) describes the method which he uses in the artificial feeding of new-born infants, and which he has found to be extremely valuable in nearly all cases in which artificial feeding was required. He uses in all cases whole milk, diluting it considerably during the first three months. The quantities which his experience has taught him to advise during these months, correspond closely with those prescribed by others for breast-fed children. Sometimes they are even smaller. Between the seventh and thirteenth week he advises 800 cc. in 24 hours, and does not increase the quantity to more than 1 liter per day up to the end of the first year. Concerning the quality of the milk mixture the condition of the child must remain the chief guide. The general rule which he followed was this: 1-5 of the daily volume of milk corresponding to the age of the child was multiplied by the weight of the child in kgrs., and this result corresponded to the amount of whole milk used. A child three weeks old and weighing 3 kgrs. (6½ lbs.) will usually get 500 cc. (1 pt.) of milk, of this 300 cc. (10 ozs.) is whole milk, the rest is dilution. In occasional cases, during the first few months of life, he considers warm cream mixtures in definite proportion (he gives tables for those proportions) preferable to the above-mentioned milk mixtures.

Depressant Drugs and Sudden Deaths. Under this heading, the ("Journal of the American Medical Association" in a recent editorial, presents the statistics of sudden deaths from heart disease in New York City, showing that, allowing for the increase of population, the deaths of that kind to each thousand were, in 1900, 1.18; in 1901, 1.31; in 1902, 1.34. For the year 1903, however, the ratio went down to 1.28 per thousand. At the beginning of last year, the Board of Health, suspecting that many prescriptions for phenacetin were being filled by druggists with acetanilid or with a mixture of the two drugs, sent inspectors to look into the matter. The result of this investigation was that of the 373 samples obtained, only 58 were pure phenacetin, while 32 were pure acetanilid, the remainder being adulterated, mostly with acetanilid. These facts were officially published, and druggists who should hereafter offend in this manner were threatened with exposure and prosecution. The very next year occurred the slight reduction mentioned in the actual sudden death rate from heart disease. Now it is well known that acetanilid is a distinctly depressant drug for the heart, and also that the so-called headache powders so freely dispensed in drug stores always contain acetanilid. There can be no doubt that great harm is being done in this way, both in this city and the country at large. Proper legal regulation of the sale of such depressant drugs so that they could only be dispensed on physicians' prescriptions, would certainly in the long run have a beneficial effect on the sudden death rate from heart disease. This form of death is becoming more frequent in this country, and there is a serious menace for those sufferers from even slight forms of heart disease who are so foolish as to take these remedies.

Prophylaxis of Pneumonia. Dr. Wm. K. Jacques, in a paper read before the Chicago Medical Society, said, in regard to prophylaxis, that the most important point to remember is that pneumonia is an infectious disease, and that the infection should be destroyed as near its source (the patient) as possible. The fact that many pneumococcic cases occur where there is a tuberculous lesion makes the discharge from such patients doubly dangerous. In the use of formaldehyde gas it should be remembered that dried pneumonia sputa and the horny resisting tubercle bacilli can be but little affected in the way it is usually employed for disinfection. Cleanliness is the first and best half of disinfection. Burn, boil and scrub; lastly, disinfect.

Bacterial Light Lamp. Molisch ("Ind. Med. Jour.", Aug., 1903), in a communication to the Vienna Academy of Sciences, said he had been able to photograph phosphorescent cultures of bacteria, after an exposure of five minutes, by their own light. In order to photograph other objects by means of this bacterial light, he constructed a special bacterial lamp. This consists of a large flask, whose interior is lined with salt-peptone-gelatin, previously inoculated with bacteria. On the second day following the inoculation, the lamps begin to glow with a beautiful bluish-green light, due to the phosphorescent colonies growing within. These living lamps have the property of shining with undiminished intensity for two or three weeks and then gradually diminishing in strength. Their light is sufficient to permit one to recognize the face of a person standing two yards away; to tell the time; to read a thermometer or even large-sized print. In view of the freedom from danger of such a cold light, its use in mining operations or in powder magazines may become of importance. Organic light, particularly the rays emanating from glowing insects, such as the so-called glow-worm, has been made the subject of many investigations, and it was even asserted that this light had the properties of the Roentgen rays. Molisch, however, proved this to be erroneous, as bacterial light acts just like ordinary light.

—Dr. Herbert D. Pease, Director of the State Antitoxin Laboratory, says:

"Many physicians, failing to take into consideration that a severe type of the disease needs much larger doses of antitoxin, have been administering the same doses of from one to two thousand units—which gave good results in the milder cases of the disease occurring a year ago—in the severe cases prevalent this fall and without obtaining the desired results. The doses recommended in the circulars which accompany each bottle are the minimum amounts which should be used in each instance. These or larger doses should always be continuously repeated at least every eight hours until convalescence is definitely established.

"Not less than three thousand units should be the primary dose in any severe case, and the same or a larger one should be repeated in not less than eight hours unless convalescence is established within that period. These amounts should be injected every few hours until recovery takes place. There is no limit to the amount of antitoxin which can safely be given, and almost numberless instances could be cited where aggregate amounts of from thirty to fifty thousand units have been used in each case with the greatest benefit. Cases almost moribund have entirely recovered after this prompt and energetic use of antitoxin. Physicians should also remember that the deaths from heart failure which frequently occur after apparent convalescence from the disease can, without doubt, be avoided by the use of amounts of antitoxin in excess of those actually needed to cause improvement in the local and general symptoms, if given reasonably early in the course of the disease.

"It seems almost unnecessary to urge that antitoxin be administered at the earliest possible moment, not merely with the object of saving the patient's life, but to avoid, as well, the development of paralysis and similar sequelæ. For the same reasons, the quicker the disease, in a given case, is brought under control by the use of antitoxin, the less the probability of the development of the troublesome paralysis and the fatal heart failure."

THE CLINIQUE

Secondary Anæmia Compared to Typhoid Fever.—I will take up the discussion of typhoid fever, particularly the blood symptoms. In connection with this I will show a case as illustrative of an anæmia resembling closely that of typhoid fever yet distinctly different from it in many respects. This man four weeks ago developed a gradually progressively increasing loss of strength. He became at the same time pale and suffered considerably with shortness of breath. He had also a slight diarrhœa. Upon his entrance a careful blood count was immediately made. The red corpuscles were markedly decreased, the count showing but 2,000,000 to the cubic millimetre. Hemoglobin had fallen to 15 per cent. The differential blood count disclosed, however, the normal percentage of poly-morpho, unclean leucocytes. This latter fact immediately excluded pernicious anæmia, for in this affection the general proportion of leucocytes is distinctly decreased. There is a decided reduction in the number of polymorpho nuclear leucocytes and an increase in the proportion of lymphocytes. Based upon the differential blood count, therefore, I would judge that this man's condition was that of a secondary anæmia, rather than a primary affection. The cause I was unable to determine and remain even to this date in ignorance of it.

We have here a most remarkable demonstration of the value of iron in blood weaknesses. I gave the patient at first five grains of Blaud's Mass three or four times daily, and gradually increased the dose until he received twenty to twenty-five grains at the same intervals. Under this treatment he showed such a decided improvement that we sent him home with instructions to continue his medicine there. As you see him now his face is a little more blanched than in health, although this is due probably to the fact that he has contracted a cold. His fingers are somewhat cyanosed and his mucous membranes, although not quite the normal color, show a distinct pinkness. When he first came under my notice they were very pale. There is one point in his blood examination which particularly interests me and has much puzzled me as to its cause, is the excess of the eosinophilic cells. We do not yet know what an excess of these cells indicate. It occurs in conditions of leukaemia, in eczema and in many other skin conditions, and is observed occasionally in asthma. One condition particularly in which there is a marked increase in these cells, and which I thought of in connection with this case, is trichiniosis. In cases where trichiniosis is of a severe grade its symptoms may almost immediately follow the injection of the parasite. There is nearly always in this disease abdominal pains, and in time general pains. Upon examination we may find the parasite encysted within the muscles. In this case, however, we have none of these symptoms. The man has a secondary anæmia whose cause, as I have said, I am unable to determine, and whose only premonitory symptoms is the slight diarrhœa I have spoken of. Such a diarrhœa is not uncommon in these anæmic cases.

The condition of the patient is now decidedly improved and I attribute the improvement directly to the iron with which we have treated him. This is in contrast to the therapeutic indications of pernicious anæmic which improves only with the arsenic treat-

ment. The blood count in this case now shows four and one-half million red corpuscles and 60 per cent. of hemoglobin. I am convinced that this is not a primary anæmia, and, in fact, I believe that many of the so-called primary anæmias will in the near future be proven to be of a secondary nature. Thus it has been recently shown that infantile pseudo-leukæmia is a secondary anæmia, whose cause is not known, but is supposed to be due to infection through the mouth.

Some weeks ago I presented a small boy, who had been suffering from a simple fibrinous effusion of the right side. After a short stay his pulmonary condition cleared and he was about to be dismissed from the hospital when he developed a high temperature, indicating a severe infection. It was due, I fear, wholly to the faulty prophylaxis that was maintained. The case serves as a good illustration of the acute method of onset which typhoid fever frequently manifests in children. There was first a chill followed by a rise in temperature to 103 deg. This remains approximately constant for two weeks, and then took on a remittent type always, however, rising to quite a high mark. Gradually the temperature went down and at this date the evening acerbations reach only to the neighborhood of 100 deg., and the child is evidently well on the road to recovery. There is still some pleuric enlargement. No Widal reaction could be obtained until the second week. The patient has been perfectly comfortable. He has had no cough. The high temperature was unassociated with sweating. Examination of the chest shows that the lung condition has cleared with the exception of a small space about the size of a goose egg at the ninth rib, where I suspect that there may still be a lobulated empyaemia. I can obtain no results over this area with the aspiration needle. We can, therefore, exclude in our diagnosis any further pulmonary involvement. There is no cough, no characteristic expectoration, nothing, in fact, but the temperature, which would point in this direction. The blood count in typhoid fever remains practically at the same standard until the third week, when it sinks to a moderate degree, the count being four thousand, or even two thousand. The differential count is of some significance. During the decline of the fever the polymorpho nuclear leucocytes reach their minimum and the lymphocytes are enormously increased. This gives us no important aid in the differential diagnosis of typhoid fever from conditions of acute inflammation and infectious febrile affections accompanied by enucleation, in which the leucocytosis is marked, and from all suppurative processes in which the polymorphounclear element is to some extent increased, as pirate, then the negative aspiration results in this case, if there is still an empyaemia the blood count will disclose it. There would be a great increase in the number of polymorpho-nuclear leucocytes. The count might even reach eighty per cent. A careful examination of the blood has been made and has disclosed no such leucocytosis. It has shown merely the count usually found in enteric fever.

I wish to point out a curious fact seen in many cases of typhoid fever, and especially marked in this boy's case. There has been an almost constant high range of temperature for some time, despite which there is no marked emaciation. On the contrary, the patient seems in a condition of rather good nutrition.

The diagnosis and the treatment of typhoid fever is now the subject with which I would like to take up your attention. It is of some aid to the physician to know that typhoid fever is by far the most common febrous disease in this country. It is well in the second place to remember that it occurs in many forms and variations. A typical case is very easy to diagnose, but it is the diagnosis of atypical cases which baffles not only the young physician but men of much experience. There are three well known diagnostic points which, if present in the same individual, are of infinite value and point strongly in the direction of typhoid fever. These are the enlargement of the spleen, the rose-colored spots, and the characteristic temperature curve, rising in a terrace-like fashion and well sustained during the first, second and third weeks. In acute septic cases of typhoid fevor blood cultures will disclose the presence of the bacillus of Eberth. The bacillus may be isolated after the second week, from the stools. This is, however, a very difficult operation, requiring the finest technique and cure. The rose-colored spots contain the bacilli, but as their demonstration in this locality is a matter of much inconvenience to the patient it is not often tried. Frequently the urine may furnish a culture of the bacillus. The Widal reaction of the patient's blood with a pure culture of the typhoid bacilli and the Diazo reaction of the typhoid urine are all diagnostic points of considerable value.

As a rule, unless all the chief characteristic features of typhoid be present and the history clear, it is best not to make a positive diagnosis. If the case be a typical one the gradual development of the disease with languor, loss of appetite, headache, dullness, increasing fever and nose bleed may justify a strong suspicion of typhoid fever. These signs, with the addition of either constipation or diarrhoea, a decided splenic enlargement, tymanites, gurgling, with tenderness over the ileocœcal region under the diagnosis highly probable. The occurrence of the rose-colored spots and the presence of the sero-reaction practically clinches the diagnosis. In atypical cases the diagnosis must be withheld until a rather late stage of the disease, when the occurrence of intestinal hemorrhage or the gradual decline of temperature by lysis is helpful.

The diseases with which typhoid fever can be confused are not many. The nervous symptoms are at times of such a nature as to closely simulate meningitis. There is reaction of the head, intense headaches, intolerance of light, rigidity and muscular twitchings. In typhoid fever, however, the spleen is larger than in meningitis; in time the roseate spots will appear, which are absorbed in meningitis. In meningitis, moreover, the reflexes are greatly exaggerated, and rigidity of the muscles frequently occurs before the state of effusion. There is also, in contrast to the dullness of typhoid from restlessness and peevishness. The temperature, as a rule, is more irregular than in typhoid fever, and maintains a lower range. The nervous symptoms assume great prominence in the early stages, especially headache and delirium. The pulse is more irregular. Some typhoid symptoms on the other hand, are absent in meningitis. Lumbar functions practically settles the diagnosis. If the diplococcus cellularies is demonstrated, there is practically no longer any doubt as to the nature of the trouble.

Another disease with which we may confuse typhoid fever is the aestivo-autumnal form of malarial fever. There are a few distinct differential points. In the first place the temperature of typhoid fever, although it takes on either a remittent or intermittent form, is, on the whole, much more sustained than is the case in malarial fever remaining in ordinary cases at about 103° or 104°. The pulse is dicrotic in typhoid fever, much more frequently than in any other disease. A dicrotic pulse in malaria is comparatively rare. The general condition of the blood gives us another differential point. In malaria the anæmia is much more marked than in typhoid fever, and comes on at a much earlier stage of the disease; both facts being due to the destructive action of the parasites upon the blood corpuscles. The discovery of the hematozoa of Laveran is practically conclusive evidence as to the existence of malaria. But frequently the parasite cannot be demonstrated until a very late stage, when the differential diagnosis would have already been made by the clinical features. If in the examination of the blood we found pigmented leucocytes, we should immediately suspect malaria. The Widal reaction is generally present in typhoid fever. In both malaria and typhoid fever the spleen is found to be enlarged and tender. The most important differential points are the nature of the temperature and the condition of the blood upon examination.

Acute miliary tuberculosis has been, and still is, frequently mistaken for typhoid fever. It begins often as does typhoid by an acute invasion. There is in both affections a bronchitis and cough. There is also a splenic enlargement in both, but this is not so marked in active miliary tuberculosis as it is in typhoid fever. The temperature, although high in acute miliary tuberculosis, is not as sustained as in typhoid. In the latter affection the pulse is usually rather slow, soft and compressible, while the respiration is not markedly increased; in the former the pulse is quite rapid and the respiration is markedly accelerated. Cyanosis is very pronounced in tuberculosis. In typhoid fever its presence is very infrequent. Even though there be a bronchitis and cough in typhoid fever, neither are as severe as in tuberculosis. The Diazo reaction may be demonstrated in both affections. There may be bloody expectoration in acute miliary tuberculosis. The examination of the sputum throws but little light on the subject, for the tubercle bacilli are rarely demonstrated at the time when the diagnosis is of so much importance. There is the absence in tuberculosis of the peculiar temperature curve, the characteristic rose-colored spots, the Widal reaction, and the abdominal symptoms of typhoid fever. There is, however, in acute miliary tuberculosis the constant existence of leucocytosis, a feature which is conspicuously absent in typhoid fever. Blood examinations have occasionally demonstrated the presence of the tubercle bacillus in the blood.

That form of pyæmia, which is not associated with sweats and chills, frequently bears a close resemblance to typhoid fever. Such a pyæmia is that which often occurs from the suppuration of bone tissue. In these cases the examination of the blood is of vital importance. There will be disclosed always a great rise in the number of leucocytes. This fact instantly gives us a clue as to the nature of the trouble. The history of an abscess or of pyophlebitis is of paramount importance.

Appendicitis has been confused with typhoid fever. I know of several distinct cases where an operation for appendicitis was performed, and which proved to be cases of typhoid fever. Some cases of typhoid begin with acute abdominal pains. This may be due to abscess formation or ulceration within the appendix, but the pain may be present in this same region without any lesion of the appendix being present. In appendicitis the onset of the pain is more generally sudden than is the case in typhoid fever. The temperature is not characteristic, and there is usually a marked leucocytosis. There is a tenderness in the right iliac region and a rigidity of the muscles in the same location. This has been known to occur in typhoid.

Case. III. This woman I brought before you two weeks ago. At that time she complained of much abdominal pain, a circumstance which was rather suspicious, and which caused us to keep a very close watch of her. None of the feared complications, however, developed. By the application of turperative stropes and by enema her pain disappeared. Her temperature, too, is down almost to the normal point. The case is remarkable on account of its long duration and its complications. She had severe bronchitis with whistling rales, and was affected also with a marked diarrhœa. The abdomen was much distended, but at the present time, as you may see, is flat. The pulse is still a little rapid, and the first sound of the heart short. But altogether her condition is unusually good after an illness of six weeks. Her treatment was that which is applicable to all cases of typhoid fever, and which I shall now describe.

In the treatment of typhoid fever we must consider first the preliminary measures, that is, the observance of prophylactic precautions. By the ordinary hygienic precautions the spread of typhoid fever has been greatly limited. Sanitation is of primary importance. Disinfection is the best means that can be applied during the attack. The stools, urine and bed linen should be taken extreme care of, and all the bacilli destroyed. The bed linen and body linen should be changed at least once a day, and as often as soiled. The mattress should be protected by a rubber sheet, which should be taken off and disinfected with the linen. Care must be taken to thoroughly cleanse the patient after every stool.

The treatment may be divided into three general headings. First that of dieting, second hydrotherapy, and third, which is least important, administration of drugs.

The most widely used article of diet in typhoid fever is milk. It should be well diluted and given to an adult every three hours, in amounts of six ounces. Instead of plain water lime water may be added. If the patient objects to milk, mutton or chicken broths may be given. We may add to these vegetable juices. If milk be given, the daily quantity should not be less than three pints. The stools should be carefully watched, since if too much milk be given curds will appear, or upon microscopic examination numerous fat globules. If this be the case the quantity should be decreased. There are typhoid patients who cannot retain any food on account of vomiting. In such cases we may substitute or supplement the usual methods of feeding, by rectal alimentation. This mode of feeding may be the only means of saving the patient's life. In the third week we may give soft boiled eggs, custard, mashed potatoes with

milk and junket. In fact we may use freer dieting than at first. In early convalescences the patient may take well-cooked plain rice, entire eggs diluted, or their custards. Solid foods should not be given until the temperature has been down to normal for at least one week. The return to a full solid diet should be very gradual. Pure cold water is an excellent drink for fever patients and should be given regularly. It has a valuable action as a diuretic in both this and other infectious fevers. Coffee or tea and lemonade may be given, sweetened with glycerine or saccharin.

There are three forms of the application of hydrotherapy to typhoid fever, namely, the cold sponge, which should last about twenty minutes; the cold pack, which is often extremely efficient, especially in cases of marked delirium, and thirdly the tub bath. The beneficial effects of the cold water treatment are many. In the first place the bodily heat is directly absorbed, thus overcoming the ill-effects of the high fever. This effect becomes especially marked after a day or two of the treatment. The heart is stimulated, thus obviating the danger of sudden circulatory collapse and preventing the results of cardiac weakness (hypostatic congestion of the lungs, venous thrombosis, etc.) The pulse rate which has been hitherto weak and rapid, drops and becomes of good volume. Upon the nervous system the effects are especially marked. The bath will often make the mind clear and even dissipate the delirium. The mental dullness is diminished, and by the general beneficient action sleep is induced. It is no uncommon sight to see a typhoid patient, who has been wildly delirious, fall asleep in the bath tub. By the action of the baths upon the renal functions, the elimination of the toxins of the typhoid bacillus by the kidney is increased. The respirations become invigorated, inspiration becoming deeper, and thus diminishing the danger of pulmonary complications. By reason of the cleanliness which the baths insure, bed sores seldom occur. What is most important of all is the fact that the cold-bath treatment has reduced the mortality from typhoid fever to seven per cent. against fifteen per cent. of deaths which occurred before the institution of the treatment.

We bathe the patient every three hours, unless there are contraindications. The bath is indicated as soon as the temperature reaches 102°. The temperature of the water is not fixed. It is usually 80°, but may be as low as 70°. Below this point it is not advisable to go, except in rare instances. The higher the temperature the cooler should be the bath, or the longer the immersion. In some cases where the patient is very young or very sensitive or very weak, it is best to commence with a temperature of 85° or even 90° and gradually cool it down to whatever temperature is considered advisable. This is known as the gradually cooled bath of Ziemssen. The bath should be accompanied by gradual friction of the surfaces. It should last ten or fifteen minutes. The first bath should be the shortest and the subsequent ones gradually increased. After a bath the temperature frequently drops three or even four degrees. If the patient cannot well stand the bath at the ordinary temperature, or if reaction after the bath is delayed, stimulants are beneficial, both before and after. The patient should be carefully lifted out of bed upon the sheet, and so lowered into the bath. It is frequently advisable to keep the linen suspended in the water and not let linen lie upon the bottom of the tub. His head should be rested on an aircushion. The less the inconvenience the patient is subjected to, the more pronounced will be the benefits resulting from the bath.

Although there is not a particle of doubt that hydrotherapy has greatly lessened the number of deaths from typhoid fever, it has not reduced the mortality from hemorrhage or perforation. Neither has it in any way reduced the liability of a relapse. Relapses are just as common, if not more so, under the cold bath treatment as they were under the old treatment.

The contraindications for the bath were few. Perforation is an accident the seriousness of which can be only increased by the cold bath. If there is hemorrhage, the bath should be stopped, for by its action upon the blood vessels the tension is increased and the hemorrhage made much more serious. The patient should, in such a case, be kept perfectly quiet, and if there be no recurrence the bath may be again used. Marked depression is a contraindication for the bath. In fact very weak patients should not be bathed at all. The excitement in the necessary handling of the patient has been known to result fatally. Cases that have progressed to an advanced stage should not be immersed. Phlebitis is a condition in which the bath is a dangerous measure. The friction over the veins is deleterious. When there are marked abdominal pains the danger of perforation should be considered and the bath suspended until the symptoms abate.

Dwarf Growth To-day and in the Past. Poncet ("Bull. de l'Acad. de Méd. de Paris") presents arguments to prove that the traditions of pygmies in the remote past related to the advance guard of the human race, who were diminutive in stature. Recent discoveries of skeletons of dwarfs in the prehistoric burying places, their numbers during ancient and medieval history and the few specimens known at the present day, all confirm the assumption that they belonged to a special race, numerous in the early days and gradually becoming extinct. Rome had battalions of dwarf gladiators, and as late as the tenth century dwarf races were known to people Switzerland, Alsace, etc. Nuesch and Kollmann maintain that they were the original inhabitants of Europe. Poncet has recently examined two dwarfs, brother and sister, both healthy and intelligent, whose father and grandfather had likewise been dwarfs. Radioscopy shows that the epiphysial cartilage must have become united to the shaft at the normal date, while in ordinary dwarfs this union does not take place, and their achondroplasia is pathologic. In the ancestral pygmies the ossification proceeds normally, only the epiphysial cartilage is physiologically and relatively unproductive.

—In company with others, Dr. H. O. Marcy has been interested in a method for the concentration of milk, by which New Hampshire selected pure milk can be kept for two weeks. This milk has been sent to the Bermudas and back in a fruit steamer without souring. Such a process promises to revolutionize the milk industry, so that families will only have to obtain their supply of milk, even as they now do their butter, once a week, or even at longer intervals. This will enable cities to draw their milk supply from a much wider area than heretofore. Dr. Marcy says that the concentration process does not seem to throw out the milk sugar, nor the soluble albumins of the milk.

CORRESPONDENCE

HOUSEHOLD ECONOMICS.

To the Editor of "The Medical Times":—

In "The Medical Times" of December, '03, reference was made to the good work in the line of household economics, which is being done by Simmons College. There is another school for young women, Lasell Seminary, Auburndale, Mass., which heartily endorses all the praise given to Simmons, and yet claims for itself the honor of having been the pioneer in this line of work. The editorial mentioned contains the following sentence: "It is to the disgrace of our colleges for girls that they have not long ago instituted methods similar to those adopted by Simmons College. While Lasell does not assume the name of college, it has, as a school for young women, long been doing this work.

Dr. C. C. Bragdon, the principal of Lasell, believing that the true education for young women is that which gives them the power to make and preserve ideal homes, over twenty years ago originated the idea of making household economics an important part of his school's curriculum. In a Lasell catalogue of 1877, he has a page entitled "The New Departure" which opens with these words, "Knowing how to live well and economically is certainly as much importance to an American citizen as to be able to calculate eclipses or to demonstrate that the angles in the same segment of a circle are equal to one another." He then sets forth the rare opportunity open to Lasell students in the way of object lessons and practice in cooking. At that time Miss Parloa was the teacher.

This work, always superintended by the most capable women, some of whom are Mrs. Daniell, Mrs. Lincoln and Mrs. Loomis, has been continued and enlarged until at present Lasell's course includes lectures on Home Sanitation, on the Chemistry of Food, and three graded years in Cooking, which culminate in an exceptionally valuable course of Applied Housekeeping. The students taking this course make a household by themselves, each one at different times acting in the capacity of housekeeper, waitress, dishwasher, breakfast, dinner, dessert and bread and cake cooks. The housekeeper does marketing in Boston, keeps the household accounts, plans the menus, and entertains the invited guests; the waitress sets the table, serves, takes care of the dining-room, china closet and silver. The work is so arranged as not to interfere with other regular studies.

"The elevating of housekeeping to its place as a science and an art" is a distinctive feature of Lasell Seminary.

Very respectfully,
CLARA A. WINSLOW.

Auburndale, Mass, Feb. 5, '04.

Ed Note. The editor is much pleased to give place to the above important information, not only in the interest of justice, but also to show that there is at least one institution of learning, where girls are taught how to make better and happier homes for themselves, and for those closely related to them. This work is in its infancy, and needs fostering, improving, and to be made as practical as possible.

Precocious Maternity. The occurrence of pregnancy in a girl of eleven years, proceeding to full term, and birth accomplished naturally after fourteen hours, is of sufficient rareness in this country to merit more than passing notice. Such a case is reported by Allen ("Maryland Med. Jour.," October, 1901). The child-mother was a colored girl, her age at conception being ten years and eleven months, her age at birth of child, eleven years and eight months. Her pelvic measurements showed it to be of the infantile type of the justo-minor variety, the conjugata vera diameter being 6.5 c.m., with the child's head having a sub-occipito bregmatic diameter of 10 c.m., and occipito-frontal diameter of 11.2 c.m.

With this disproportion the labor was an extremely easy one, and accompanied by very little real or apparent pain. The child weighed 32.65 grammes, well developed, cried and nursed, and on the sixteenth day was vigorous.

A New Office Building for Doctors. We learn that the Madison Avenue Hotel, corner of Madison avenue and 58th street, will shortly be transformed into an office building by the property owners. The offices will be rented only to physicians, and several of them have been secured already by medical and surgical specialists. It will be called the "Sydenham."

Proposed Sterilization of Money. The paper money circulating in New York is, when old (and it becomes old very quickly), quite unfit to be handled by fastidious people, and it is never retired. The question has been raised by Dr. Darlington, the Commissioner of our Board of Health, whether it is not also loaded with diseased germs. Should bacteriological experiments now being made in the city laboratory prove that this is the case, a plan will be carried out for the sterilization at regular intervals of money from the street car companies, the great retail stores and other centers of traffic, and this, it is expected, will be backed up by pending legislation.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN PATHOLOGY AND DIAGNOSIS.

Examination in Pathology and Diagnosis.

1. Define infection. Mention three infectious diseases and give the lesions occurring in one of the diseases mentioned.
2. Give some of the pathologic changes occurring in the later stages of syphilis.
3. Mention some of the abnormal products found in the urine. Give the significance of two of the products mentioned.
4. What lesions may develop in the course of an attack of acute appendicitis?
5. What complications are liable to occur in chronic otorrhea?
6. Describe the tissue changes in herpes zoster.
7. From what conditions may pyuria arise?
8. Give the procedure of examining sputum for tubercle bacilli.
9. Make a diagnosis of dislocated movable kidney (floating kidney).
10. What conditions other than those involving the bladder may cause abnormally frequent urination?
11. Enumerate the nervous symptoms due to eye strain.
12. What symptoms would lead to a diagnosis of intestinal indigestion?
13. Make a diagnosis of general anemia.
14. What diagnostic sounds does auscutation reveal in (a) aneurism of the arch of the aorta, (b) pleuritis (first stage), (c) pneumonitis (first stage), (d) acute bronchitis?
15. Give a characteristic temperature chart of a case of typhoid fever, noting probable points of prognostic value in the progress toward recovery.

MISCELLANY

—Apples upon the surface of which are perfectly reproduced the photographs of the Emperor and Empress of Russia and of the President of the French Republic have been shown in France.

—The ultimate problems of the various branches of science are becoming more nearly related, and their nature is such that almost all can be brought into the jurisdiction of the new department of physical chemistry.

—Thanks to the munificence of an unknown donor, St. Luke's Hospital is to have a new private patients' pavilion, thoroughly equipped. It is to be modern in every respect and will prove a great addition to the hospital.

—"I heard to-day that your son was an undertaker. I thought you told me he was a physician." "Not at all." "I don't like to contradict, but I'm positive you did say so." "You misunderstood me. I said he followed the medical profession."

—The State of Utah has ordered a general health day—namely, the first Monday in October. On this day all theatres, churches, public halls, hotels, boarding houses, etc., must be thoroughly disinfected. People are wondering if these places in Utah have never been disinfected before.

—Signora Rina Monti is the first woman in modern times to be appointed to a university chair in Italy. She has, says "Woman's Employment," the Chair of Zoology and Comparative Anatomy at Messina, and that of Professor Extraordinary of Comparative Anatomy at Bologna.

—In country practice, Chapin says ("Boston Med. and Surg. Journal") that the directions given for preparing a room for operation are generally useless. The dust created by taking up a carpet is often a greater danger than the floor covering. It is better to tack down sheets wrung out of chloride solution.

—If a patient during treatment, or while undergoing a slight surgical operation, becomes faint, have him bend the body so that the head will approach the knees. This is a more convenient and rapid method of inducing cerebral congestion in most instances than having him laid flat on the back.

—The Hospital des Quinze-Vingts in Paris, which is to disappear, is, next to the Hotel Dieu, the oldest hospital in that city. It was founded by St. Louis in 1254, for the benefit of three hundred noblemen whom the Saracens had deprived of their eyesight and whom the king had brought back from Palestine. Since then it has been used as an asylum for the blind, and the number of inmates has considerably increased.

—A nurse at one of the French hospitals, reports the "Lancet," has just tried a new way of committing suicide, viz., by swallowing two tubes of Eberth's pure culture of the typhoid bacillus. On the third day she had a headache, but no fever. Several rose spots were visible on the eighth day. The short duration of the period of incubation is explained by the large quantity of bacilli introduced at one time. It proved to be a very severe attack of typhoid, but apparently was not fatal.

—For the removal of fish-bones, pins, needles, etc., from the upper part of the esophagus, if a bristle-probang is not at hand, make a little ball of absorbent cotton, lubricate it with a little butter after it has been tied to a string, and cause the patient to swallow it. By pulling it out again with the string the foreign body can often be removed.

—A cremated adult human body leaves a residuum of grey ashes which altogether do not weigh more than about two pounds.

—According to Professor Mosso, we are able to live longer the more our nerves are enfeebled. The less robust a person is, he points out, the more able he is to resist the ravages of time and disease.

—Dr. Grixoni, in "Riforma Medica," of December 3, 1902, investigated the properties of liquid gelatin in old specimens of canned meats, and found that this liquefaction of gelatin was caused by bacteria, and that it was toxic to animals in whom it was injected, or to whom it was fed. He concludes that canned meats that splash on being shaken are dangerous to life, or, at least, to health, unless boiled before being consumed.

—The death from starvation of Mrs. Edith White, a dentist, is reported from Alaska. She was a graduate of the dental department of the Minnesota State University, and was a practicing dentist in Dawson City for some years. She started from that place to go into the interior, and nothing more was heard of her until her body was found on the banks of Copper River. With the body was found a diary, in which the starving woman had recorded her sufferings.

—Railroads throughout the country are waging war against the use of intoxicating liquors and tobacco by employes who are engaged in operating the lines. The fiat has gone forth generally that employes who drink or frequent places where liquors are sold are not safe to entrust with the lives of patrons or with the valuable property transported by the railroads. The rules which have recently been inaugurated against the use of tobacco are not so stringent as those against liquor, but generally they proscribe tobacco while on duty and when about stations. As for the cigarette, the order against it is almost as severe as that against whiskey. The rules are being strictly enforced.

—Individual struggle for existence is not the leading factor of evolution in Prince Kropotkin's view. His new work seeks to show that mutual aid has played a far more important part, and points out that most animal species live in societies, uniting in defence against all unfavorable conditions. The most numerous, prosperous and progressive animal species are found to be those in which individual struggle is most reduced and mutual aid most developed. Human progress in arts and intelligence has depended on mutual aid, and the periods when this influence has been most active have been those of advancement in science and industry.

—An inquiry by Dr. Alfred Wolff into the mysterious cause of cancer has yielded an unexpected conclusion which promises temperance advocates a new and powerful argument. Taking the widest possible survey of cancer areas throughout Europe and in the United States, Dr. Wolff discovers that all the districts of high cancer mortality are districts in which beer or cider is largely drunk. Bavaria, for instance, heads the list in Germany, and Salsburg in Austria—both great beer-drinking provinces. In France the statistics are still more striking. There is the most marked contrast between the high cancer mortality in beer-drinking departments and the low death-rate from cancer elsewhere. The increase of cancer in England during recent years, Dr. Wolff thinks, has probably a direct relation to the increased consumption of beer.

ORIGINAL ARTICLES

IMMODERATE PHYSICAL EXERTION A FACTOR IN ETIOLOGY.*

BY THEO. J. JACQUEMIN, M.D.

NOT since the days when the French pedagogue, Rousseau, made his eloquent appeal in behalf of gymnastic exercises as an integral part of school education, and pointed out the injurious consequences of physical indifference on mind and body, has physical culture aroused an interest more intense and widespread than is reaveled now-a-days in almost every institution of learning throughout our broad land.

This interest is certainly deserved by the movement which advocates the regulating of the mental culture of the rising generation upon the basis of a sound physical training. There lies indeed one of the most perfect safeguards of the future life and prosperity of our country.

With the ancient classical nations the chief part of education consisted in the training of the body and maintenance of the health and strength of children. Except in the hours devoted to letters and music, the education of boys was conducted in the gymnasium where their moral and mental training received as careful attention as their bodily exercises.

The schools in those days were the gathering places where philosophers assembled to talk and to lecture, not only on topics of intellectual pursuits, but on physical exertion as well. Gymnastic feats were designed not only to foster the taste for war and the strength needed for using weapons, but also to produce a graceful carriage and healthy tone of the body.

When the "Father of Medicine" wrote his first treatise on physical exercises, he merely improved on a method originally formulated by Prodicus, who, like Hippocrates, lived in the first period (466 B. C.) of the sophistical movement that pervaded Grecian civilization.

Prodicus was very delicate and in poor health; having found such exercises beneficial to himself he pointed out in his teachings the connection between gymnastics and physical comfort, so that his method was generally adopted till the great descendant of Æsculap put upon it the impress of his genius.

Claudius Galenus, the celebrated Roman physician and scientist, lays the greatest stress upon the proper indulgence in gymnastics, and throughout the works of ancient medical writers special exercises are prescribed for the cure of certain diseases.

There can be no doubt that much of the healthy elasticity of mind for which ancient Greece was remarkable, much of the beautiful and superb physical development of that race were due to the love of gymnastics. However, the careful provisions made by Solon and later law-givers, could not keep up the moral character of the gymnasium, and did not prevent the originators of the celebrated Olympian games from fostering the vices which appeared so much in Greek life.

Among the Romans of the Republic the games in the Campus Martius, the duties of military life, the preliminary exercises to which the soldier devoted himself, the forced marches which were imposed upon him, and the part he took in the erection of those tremendous public edifices that command the respect and admiration of modern civilization, all these served to take the place of the gymnastic exercises required by the Greeks.

Throughout history we have learned that neglect of physical culture, luxuriousness, voluptuous and effeminate life, indulging in wild and dissolute revelry and lowering of the moral standard of the nations, marched invariably on even footing, and that the beginning of decline in vigor, health and attainment was invariably marked by the abandonment of the great principles embodied in the teachings of the Greek philosophers, by the sinking into oblivion of that fundamental law in social evolution which says that no mental equipoise and serenity can exist with an unhealthy physical organization;—"Mens sana in corpore sano," a healthy mind in a sound body.

Ancient Greece fell by deserting its gymnasiums that were the pride of the nation and were once surrounded by the jealous care of its wise legislators. Ancient Rome went to its perdition by cultivating vice and by neglecting the beauties and advantages of physical culture.

Nowhere have the good effects of Rousseau's "Emile" been more strikingly exemplified than in Germany. When in the beginning of the past century many parts of that country groaned under the iron yoke of the first Napoleon, "Old Father Jahn" and his faithful followers were establishing gymnastic schools from which issued the well trained generation of men who, in due time, drove the French legions across the Rhine.

Thus, we may take it for granted that there is tremendous good in physical training. But like all the other good things which life affords, it must be partaken of in moderation.

It will never do to allow weak and strong alike to engage indiscriminately in all kinds of games and sports. Exercise must be adapted to the needs of the individual and, like heroic therapeutical remedies, must be administered in doses to suit the age, sex, strength and individual susceptibilities.

Whether we have to deal with pedagogical, military, æsthetic or medical gymnastics, let us never forget that there is for every vital factor in biological as well as in social evolution a golden midway; "In medio virtus," says the moralist. "Est modus in rebus," says the old school of Salerne, and Ovid, the classic master of natural philosophy, tells us that immoderate exercise exhausts body and mind, while relaxation that follows moderate physical exertion strengthens the body and invigorates the mind.

"Otia corpus alunt, animus quoque piscitur illis,
Immodicus contra carpit utrumque labor."

Physical training is a necessary factor in the maintenance of health and indispensable for the proper development of the body, but it should not be carried beyond certain limits, especially in young people. Although violent exercises may be beneficial to a certain proportion of cases, yet in the majority it becomes injurious because it is as a rule carried to excess.

Who does not think with a feeling of pity of the poor fools that were allowed in the very metropolis of our great American continent to ruin their minds and bodies by a six-day bicycle race. The law forbids prize fighting, dog fights, cock fights, and so forth, but condones easily things that are of a far-reaching and most deleterious effect upon the health of the participants, and

* Read before the North Hudson Co. Medical Society, February 25, 1904.

on the future of their families.

I cannot help thinking that many of the boys in our public schools and colleges are not fit to indulge in the violent forms of exercise which are now in vogue in many of these educational establishments. I have personally observed several striking examples of the injury to health that may arise from such gymnastic abuses.

When practicing in Ghent, Belgium, I had many opportunities to observe the development of grave cardiac trouble in a number of boys who, qualified as pigeon carriers, indulged in long and exhausting foot races. I have seen in my own family, osteomyelitis result from participation in a football match, and I have had under my care not less than half a dozen cases of appendicitis as the result of a long bicycle run.

The causes of the ill effects induced by over exertion must be understood as follows:* Muscle derives its nutrition from the blood which is continuously pumped by the heart through the arteries to the microscopic tubes called Capillaries, which form a dense network throughout every part of the system. The blood is constantly filtering through the endothelial walls of this network and the muscle, like every other tissue, extracts from this fluid the materials which are necessary for its repair, letting the rest go. The molecular constituents of the muscular tissue are continuously changing, the older material crumbling down and the new taking its place.

"Das Alte fällt in Trümmer
Und neues Leben ersteht aus den Ruinen."

On this account a continuous supply of nutritive fluid must be kept flowing around and between the fibers. It is a well known physiological law that every organ of the body receives a larger supply of blood when in a state of activity than when in a state of rest. "Ubi stimulus ibi affluxus."

During muscular activity the blood vessels which convey the life and strength giving fluid to and through the substance of the muscles are found to be dilated, and the fluid portion of the blood leaks through the capillary walls in increased quantity. The chemical changes within the constituents of the muscle fiber take place with greater rapidity and in consequence of this accelerated metabolism the waste products are worked off in larger quantities to find their way into the general circulation, partly by osmosis, into the capillary blood vessels, partly into the open mouths of the lymphatics which are found in the interstices of every tissue, their function being to receive the impoverished plasma and carry it away finally in the larger veins by way of the thoracic duct.

The nutritive changes which are continuously occurring in living muscle are like other chemical changes accompanied by the production of heat. The more highly organized tissues of the muscular and nervous systems are characterized by complexity of composition and great instability of molecular structure. The chemical changes proceed more rapidly in these and on those changes especially depends the production and maintenance of animal heat.

The muscles of the body form so large a proportion of the whole mass of the organism that they have very properly been called "the furnace of the animal economy;" about four-fifths of the total heat of the body being evolved within their substance. This fact alone should impress upon the mind of the student of what capital importance for the maintenance of health, order and harmony, a proper functional activity of the muscles must be and what it means for the welfare of the general economy.

The ultimate products of muscular activity are finally washed out of the system with the watery excretions in the form of urea, with other organic compounds of minor importance, and also various soluble salts, carbonic acid, sarco-lactic acid and water.

The increase of muscular activity increases the proportion of effete material. Up to a certain degree only is the organism able to eliminate the cinders and slags; but with over-exertion a point must soon be reached beyond which the waste products begin to accumulate in the tissues and circulation. Then the various phenomena of fatigue begin to manifest themselves; gradually the system, which is no longer able to rid itself of the toxic products of organic waste by the natural physiological channels, becomes overloaded, as a stream becomes muddy after a violent rain storm in which the forces of Nature have been, as it were, in a state of over-exertion.

As soon as this stage is reached healthy nutrition of the organs can exist no longer. Indeed, a condition is created which may give rise to almost any symptom or affect almost any organ or function. We have a state of physiological anarchy, which tells with especial effect on the nervous centres. Interstitial combustion becomes imperfect and the trophic centres which preside to metabolism are the first to be affected. Inhibition of the heart contractions will no longer take place, blood-pressure escapes the control of the vaso-motor centres and the heat-governing ganglia cease to perform their admirable regulating functions, leading thus to "fever of over-exertion."

Among the most serious consequences, we might mention the disturbance of the circulatory system. In our younger people, palpitations are frequently met with, and they usually originate in connection with foot-races, prolonged cycling or a football game.

At first they are not so very marked and subside tolerably well with rest, but gradually they become more and more violent and disappear only after a prolonged repose.

Palpitations are especially frequent in lads between fifteen and seventeen years of age, viz., at a period when the greatest amount of physical development takes place, are often produced in the same way. Hemoptysis and Emphysema and other lung troubles have often followed violent physical training.

Deformities of the body, lordosis, kyphosis, scoliosis, may follow the ill restricted use of certain groups of muscles. Cerebral and spinal apoplexy sometimes result from violent physical exertion. Rupture of muscles and fracture of bones are an obvious result of excessive strain.

During the football season we read at least once a week of some physical injuries due to this sport that could never win *my* admiration. Accidents due to the game of football are not the worst of evils, but, at any rate, they are sufficiently grave to cool the ardor and enthusiasm for this murderous and ultra-rough-handling sport!

and, if at such time a boy is subjected to strain, the future growth of the thorax may be entirely out of proportion to that of the heart and the foundation is laid

* John Knott, Professor Dublin University.

for a constitutional disease.

Palpitations after exercise are most marked in dyspeptic and rheumatic subjects, in those of a neurotic disposition and especially in boys who are affected with valvular cardiac lesions, such as stenosis. This is often a congenital malformation; it may remain latent for a long time and would escape notice were it not for the presence of a reduplicated sound and the fact that the patient is easily out of breath and subject to frequent nasal hemorrhages.

The most common of all cardiac lesions traceable to over-exertion are hypertrophy and dilatation of the right heart. Sometimes this is marked by transient signs of cardiac failure, which is not a rare occurrence after foot-races or cycling contests.

Aneurism is often referable to excessive exertion. The production of hernia is notably liable to occur in subjects with anatomical predisposition. Varicose veins

Over-indulgence in gymnastic feats and other physical contests may also give rise to disturbance of the digestive functions and existing conditions of dyspepsia may be greatly aggravated by the fact that exercise is taken too soon after meals or carried otherwise to excess.

In reference to the effects on the general nervous system, insomnia is one of the first symptoms that set in as soon as the salutary dose of exercise has been passed. Further on we notice a feeling of discomfort in the head, clouds and flashes before the eyes, ringing sounds in the ears, a general bluntness of sensation and confusion of ideas. Is fatigue still carried further, a sensation of overpowering anguish permeates the entire system, the head feels as if bound with iron bands, distressing giddiness sets in, a kind of drunkenness overcomes the brain and the individual losing consciousness, falls in a fainting condition, the heart action grows very weak, and the swooning may terminate fatally, or the person may awake a raving maniac. At Madison Square Garden is the school of pathological physiology where those symptoms could be observed and studied repeatedly within the last two or three years, not much to the credit of present-day civilization, but to the scandalizing of decent and right minded people.

May we not ask ourselves whether the reaction in favor of physical culture in educational efforts toward raising the standard of manhood and virile powers is not being carried too far? It has been said that the Nineteenth Century, so distinguished for its many-sided advancement, has realized an education which leaves no part of man's nature neglected. I doubt whether this assertion can be maintained with a full degree of credit and I really fail to see that perfect symmetry in all the various phases of human culture when I read for last year's record, about fifty deaths and just as many permanent disabilities resulting from one kind of sport—the football game.

It will be salutary to recall even to those who are best endowed with Nature's gifts, that the over-use of the same may lead to sudden or slow destruction of those elements in man which by systematic culture we should bring to a harmonious realization of their highest possibilities.

It will only be with a fair amount of well-regulated muscular and mental exercise that we can retain and improve a healthy state of body and mind. Ill arranged, unsystematic and unreasonable feats of muscular exertion will never produce a healthy body, a clear and well informed intellect or sensibilities quickly susceptible to every right feeling, but on the contrary will be one of the surest ways of permanently impairing the functions of body and mind.

Union Hill, N. J.

REMARKS ON THE PANCREATIC DUCT FROM CORROSION AND X-RAY ANATOMY.

BY BYRON ROBINSON, M.D., CHICAGO.

THE duct of the pancreas has been a dark conduit for all ages. The first light on the ductus pancreaticus was in 1641 when Moritz Hofman, of Altdorf, discovered the duct and demonstrated it to John George Wirsung, who in 1642 drew a picture of it and sent the drawing with the description to the Paris Academy of Medicine. The pancreatic duct should be known by the eponym Hofman-Wirsung duct. However, both Hofman and Wirsung thought at first it was a lymphatic extending from the intestine into the pancreas.

Dr. A. M. Schirmer, of Basel, Germany, in 1893, wrote a work on the history and anatomy of the pancreas. He took the pains to secure a copy of Wirsung's original drawing which I here present. The ideas and drawing, to say the least, are crude. From the drawing it appears that Wirsung thought that the pancreatic and biliary duct opened separately into the duodenum. The duct is drawn as mathematical as if it were a centipede. But one can only admire it as a pen drawing of 262 years old. It is likely that he had taken lessons in drawing. Dr. Wirsung was shot by a Dalmatian count during a duel.

Giovanni Domenico Santorini, whose work was published in 1775, 38 years after his death, added some light on the ductus pancreaticus by demonstrating that two pancreatic ducts existed, viz.: a larger (Hofman-Wirsung duct), and a smaller (Santorini's duct). Santorini left an original drawing showing this fact, and though it is over 170 years old, it is a very respectable picture—quite truthful. If the duct of the pancreas be injected with celoidin and placed in nitric acid for about two weeks almost all of the parenchyma disappears, leaving a mould of the ducts. The specimen should then be digested with pepsin in a brood oven whence, after being washed, it will present the most accurate form of anatomic preparations. The duct is spiral, irregular in caliber and sinuous. The lateral ducts entering the main duct at an oblique angle end in acini bulbs. The greatest number of lateral ducts enter the main duct at the proximal and distal border. The number of lateral duct diminish in number at the Hofman-Wirsung duct immediately previous to its junction with the ductus choledochus communis, some specimens show a beautiful ampulla—a pelvis—just before the pancreatic duct enter the common bile duct. The x-rays by use of celoidin and red sulphide of mercury injected will cast an accurate shadow which can be magnified for a drawing model. For some $15 to $20 expense one can secure an x-ray for a general view of the ductus pancreaticus as may be noted by the x-ray presented with this article. Dissection alone presents poverty stricken view of the duct. On account of the anatomic and physiologic relations of the ductus pancreaticus and ductus bilis extensive and important clinical fields lie before us in these two ducts. The two ducts may exchange products to their detriment, and especially if calculus be present. Fat necrosis and fatty degeneration in themselves are

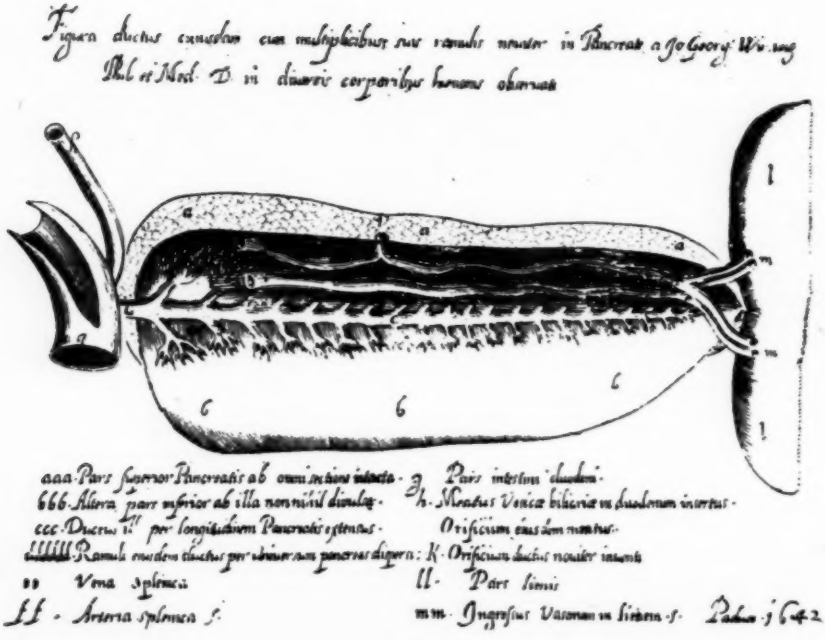
Figura ductus communis cum multiplicibus suis ramulis monstr. in Pancreate a Jo Georg. Wirsung Phil et Med. D. in diuersis corporibus humanis obseruata
aaa Pars superior Pancreatis ab omni incisione intacta.
666 Altera pars inferior ab illa non nihil diuulsa.
ccc Ductus Wirsungianus per longitudinem Pancreatis extensus.
ddddd Ramuli eiusdem ductus per obseruatam pancreas figuram.
ii Vena splenica.
kk Arteria splenica.
g Pars intestini duodeni.
h Meatus Venae biliariae in duodenum inuersus.
Orificium eius dem meatus.
K Orificium ductus communis inuersi.
ll Pars lienis.
mm Ingressus Vasorum in lienem.
Padua 1642

FIG. 3

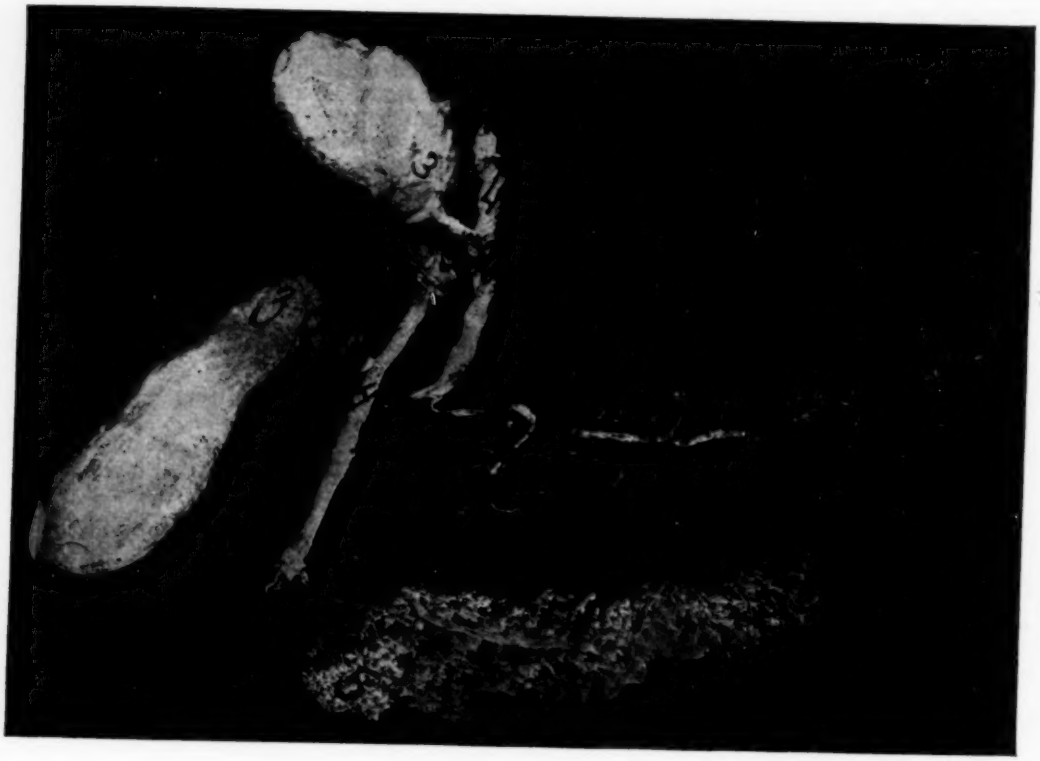

FIG. 2.

PANCREATIC DUCT FROM CORROSION AND X RAY ANATOMY.

important fields. It is probable that acute pancreatitis is not infrequently the result of infection in the ductus bilis, due to calculus, passing into the pancreatic duct. A careful study of the x-ray and two corrosion specimens presented in the illustrations will impress the reader that the ductus pancreaticus possess numerous and extensive conduits with ample chances for infection of its gland. Fig. 1. An x-ray of the ductus pancreaticus and part of the ductus bilis. Dorsal view of the pancreatic duct was injected celoidin and red sulphide of mercury, x-rayed in Dr. Harry Pratt's laboratory, magnified by Dr. Wm. E. Holland, from which as a model it was drawn by Zan D. Klopper. I. Junction of ductus pancreaticus and ductus bilis. I. to II. ductus choledochus communis. II. to III. Ductus cysticus. It is markedly spiral. III. to IV. ductus hepaticus. The ductus choledochus communis passed through a groove in the caput pancreatis.

FIG. 1.

PANCREATIC DUCT FROM CORROSION AND X RAY ANATOMY.

Fig. 2. Two corrosion specimens of the ductus pancreaticus. The part of the ductus bilis is from injected dried specimens. 1 to 2 ductus choledochus communis. 2 to 4, ductus cysticus (spiral). 3, ductus hepaticus. Celoidin was used for injection. The upper specimen was corroded for three weeks in 60% nitric acid, after which it was digested with pepsin in a brood oven. The ductus pancreaticus in the lower specimen was corroded in nitric acid for some three weeks, but was not digested with pepsin.

Fig. 3. A copy of the original drawing of Wirsung sketched by himself in 1642 at Padua, Italy, and sent to the Academy of Medicine in Paris. It is reproduced from Schirmer's monograph on the pancreas.

Wirsung's entire writings consist of the following lines accompanying the drawing: First, it includes a figure and description of the pancreatic duct; 2nd, the following Latin sentence:

"Figura ductus cujusdam cum multiplicibus suis ramulis noviter in pancreate a Jo. Georg Wirsung in diversis corporibus humanis observati Padua, I. 1642."

Translated it reads: "A figure of the duct of the pancreas with its multiple branches observed in numerous human bodies. By Jo. Georg Wirsung, Padua, Italy, 1642.

THE CORROBORATIVE METHOD OF URINARY ANALYSIS.

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IN presenting this paper, I wish to be understood as being a clinician and as having nothing new to offer scientifically. The tests commonly employed in the examination of the urine are liable to more or less error and it is desirable to check one result by another. The method here suggested enables this to be done with a minimum of loss of time, as each test "kills two birds with one stone."

Single specimens of urine from new patients should always be examined for albumin, sugar and indican. It is not especially important to record the color nor reaction unless the possibilities of precipitation from the urine are marked and, in that case, it is better to deal with assembled urine. Under ordinary circumstances, and, certainly, when it is feasible to obtain a 12 or 24 hour sample, it is practically a waste of time to apply any quantitative test to a single sample, even that of specific gravity.

The simple, qualitative tests are carried out as follows:

1. Nitric acid ring test for albumin, indican and bile pigment. Place about a centimeter of nitric acid in a conic wine glass and float over it with a pipette a considerable quantity of urine, at least 5 c.c. The well known white band at the junction of the two liquids indicates albumin; a blue or purplish band indicates indican; a reddish band is construed by some as meaning another form of oxidation of indigo, but it also represents the urochromes variously classified and described by different authors, and certainly abnormal and vaguely known pigments. A green band indicates bile pigment. The chief interferences are as follows: Albumin may be imitated by various balsamic urinary antiseptics, such as turpentine, cubebs, etc. Occasionally an excess of oxalates forms a narrow ring and crystals of urea nitrate may separate quite rapidly from concentrated urine. They are less distinctly white and dense than albumin. A uratic cloud, well above the junction of nitric acid and urine should not deceive any

one. Any artificial pigment, as methylene blue, will obscure the test for indican, bile, etc.

2. Copper test for sugar, albumose and peptone. Almost any alkaline solution of copper sulphate may be employed, including the Fehling solution. The simplest and most stable is made by adding a drop of a 10% glycerin or aqueous solution of copper sulphate to about 1 c.c. of liquor potassæ. The urine is added in a ring above the alkaline copper solution and warmed gently, short of boiling. A lilac band indicates either albumose or peptone. When this test is obtained, or if there is a suspicion of the presence of a trace of digested proteids, more elaborate tests should be applied which can not be described here. The urine is then boiled, and, if a distinct orange or reddish precipitate forms, adhering to the glass, so as to require removal by a strong acid, we may be reasonably sure of the presence of glucose. Cane sugar, which I have never yet found in urine, even after experimental ingestion of large quantities, will not precipitate copper unless previously boiled for a considerable time, preferably with HCl, to invert it into glucose and lævulose. Considerable amounts of urates cause some reduction of copper and salicylates previously administered cause an opaque but light cloud of more yellowish color than the precipitate due to the reduction of copper by sugar. Fifteen years ago it was the custom to keep adding urine till a sickly, greenish yellow tint was imparted to the inevitable precipitate of copper phosphate, and then to note a trace of sugar. Whether this tinge indicates the trace of carbohydrate normally present in urine, or whether it is purely adventitious, I do not know, but the test carried out in this way gives false conclusions clinically. If an atypic reduction of copper occurs, the urine and copper solutions should be boiled separately, noting whether albumin is precipitated by heat, and then mixed. Though now slightly under the boiling point, sugar will cause its typic precipitation, other substances, except considerable quantities of salicylates, will not. By the way, it is ordinarily laid down as an unalterable rule, that, if albumin is found in the urine, it must be filtered out before applying the copper test. As a matter of fact, there is no significant interference, though, in the presence of a doubtful trace of sugar, this precaution should be observed.

3. Picric or picro-nitric acid test for albumin and sugar. This test is so simple that it may be used as a verification of all cases, or may be used as the initial test for sugar, if there is no suspicion of albumose and peptone. The urine is thoroughly mixed with an equal quantity of a saturated solution of picric or picro-nitric acid. A cloud or floculent precipitate indicates albumin. The mixture is then rendered alkaline with liquor potassæ, about one-quarter the total volume of the mixture being added. It is unnecessary to test the alkalinity as the change of reaction is denoted by a reddish tint, and the solution of albumin if any has been precipitated. It is unnecessary to eliminate albumin. The alkaline mixture is boiled, and becomes a deep claret color from the normal trace of sugar present. Any significant amount, even a trace in the clinical sense, causes an intense reddish-black, opaque change. If there is any considerable quantity of sugar, repeated dilutions of the mixture may be made before the mixture loses its dark tinge and becomes again transparent.

4. Nitroso-nitric acid test for bile pigments, indican and albumin. This is the ordinary Gmelin test. A characteristic play of colors is seen instead of the green developed by nitric acid alone. The albumin appears as in the nitric acid test. Indican may be too thoroughly and quickly oxidized to appear conspicuously, but usually shows as with the nitric acid test.

5. Hydrochloric acid test for indican. The urine is boiled for a moment—not too long—with hydrochloric acid. A faint purplish tinge indicates an excess of indican. Albumin is precipitated by heat, but is usually redissolved by the acid. The test is much more delicate if the indican—or rather indigo—is extracted. This is usually done by shaking with about 1 c.c. of chloroform. The writer's modification consists in substituting gasoline for chloroform, the former rising, the latter sinking. The former will extract indican from chloroform, and if the tube is allowed to stand, the indican will form a more or less complete ring, just above the acidified urine. A very marked excess of indican produces an intense coloration, which scarcely needs extraction, but, by using definite quantities of urine, and extraction with chloroform, the centrifuge may be employed to obtain a precipitate for comparison. It is now considered that the color of the indican reaction is due to indigo blue, or indigo red, or a mixture of both, and that there is no difference of significance. Quite recently it has been stated that indican may also give a brown color. This statement seems very doubtful from the clinical standpoint. A brown extract is usually found in cases in which there is a deposit of urates, and the color seems to be due to the urochrome or urochromes, which ordinarily have an affinity for uric acid, and are precipitated along with it.

6. Water test for globulin. A marked albuminuria, not due to accidental contamination from the vagina, is usually accompanied by a globulinuria. A test tube is filled with distilled water, and a drop or two of urine added. The almost complete lack of salines causes the globulin to be precipitated in a delicate cloud. While this test is, in general, confirmatory of the test for albumin, the two do not invariably coincide. I have never found globulinuria without albuminuria, and, in general, globulinuria indicates a severe, essential albuminuria.

7. Guaiac test for pus and hæmoglobin. A fragment is removed from a lump of resin of guaiac, after first scraping away the coating due to oxidation in the atmosphere. The fragment is dissolved in wood or grain alcohol to make a fresh tincture. ½ c.c. is enough for a single test, and the reagent should not be allowed to stand for any considerable time. A few drops of urine are added. If the urine is acid, naturally or by the addition of acetic acid, and if a blue color immediately develops, pus is probably present. This test should be verified microscopically.

Usually the blue color does not develop. Then a few drops of hydrogen peroxid or of old oil of turpentine in which ozone has developed, are added. If a blue color develops immediately we may conclude that hæmoglobin is present. After standing a few minutes a blue color develops anyhow.

As the hæmoglobin test is not very reliable nor delicate, it should be verified by Teichmann's test for hæmin. A few drops of urine are evaporated on a microscope slide, or watch glass, or the precipitate of blood and albumin may be employed. After drying, glacial acetic acid is added, and the glass is heated. In the presence of a chlorid or iodid, chlorids being present in the urine in sufficient amount unless they have been washed

away in the preparation of the precipitate, characteristic, brown, rhomboid crystals are produced.

As all of these blood tests are somewhat uncertain it is well to verify them by the microscope, which also affords corroborative or antagonistic evidence with regard to albumin, etc. But the microscope will easily reveal a slight hæmorrhage which does not respond to the ordinary chemic tests. A slight hæmoglobinuria—or other form of elimination of blood pigment by the kidneys—necessarily attends every case of anæmia and occurs in health, but it cannot be demonstrated. Clinical hæmoglobinuria produces a smoky urine without the appearance of blood cells. Mild cases may require the assistance of an expert chemist in spectroscopic analysis.

As already stated, it is only occasionally that quantitative tests are applied to single specimens of urine. In non-albuminous and non-saccharin urine, the quantity of urea by hypobromite methods—really of total nitrogen estimated as urea—should amount to about half of the total solids which may be estimated with sufficient correctness for ordinary methods, by multiplying the last two figures of the specific gravity by 2, and reading the result as parts per thousand. Albumin lightens the specific gravity while increasing the weight of solids, and, in diabetes, the sugar and other solids may vary greatly in ratio, and in absolute proportions. However, in genuine diabetes, until the last stage is reached, or unless the patient is on a rigid diet, there is usually a considerable increase in azoturia. While read as urea, this azoturia is largely in the form of ammonium. Inorganic salts of the urine may be estimated by centrifuge with a fair degree of accuracy. Marked variations in chlorids are of considerable practical importance, and, by comparing urea and chlorids with total solids, we may check the accuracy of our results and often obtain hints as to other ingredients, if a marked discrepancy exists. Sulphates and phosphates are present in much smaller quantity, and it is only occasionally that any practical deduction can be drawn from the amount present.

Uric acid is best estimated by R. Harvey Cooke's method of getting rid of phosphates, as in the ordinary centrifugal method for phosphates, adding an ammoniacal solution of silver nitrate which prevents the precipitation of silver chlorid and centrifuging the uric acid combination with silver to a constant volume. Really, this method includes other purin bodies with uric acid, but this is rather an advantage than otherwise. Unfortunately, the amount in the urine for any one day bears no fixed ratio to the amount in the system, so that clinical deductions are impossible unless a long series of daily analyses are made.

Other urinary tests are often suggested by color, and, in all doubtful cases it is well to rely upon no one test. It is unnecessary to consider these in detail, but enough has been said to emphasize the importance and the relative simplicity of checking one result with another.

Living organisms have resumed their functions after enduring the cold of liquid air for six months. It is suggested that the remarkable experiment should be continued for years or a generation, for our theories would be greatly modified by an indefinite retaining of vitality, and probability would be given to Lord Kelvin's speculation that life may have reached the earth from space.

SPRING, AUTUMNAL CATARRH AND ASTHMA.

BY G. R. JOHNSON, M.D.

HAY FEVER, as far as is known, was first described by Bostock, in 1819, in the tenth and fourteenth volumes of the "Medico-Chirurgical Transactions," under the name of catarrhus æstivus, or autumnal catarrh. He collected twenty-eight cases, including his own, and from these he built up his description of the condition. Phœbus, a German physician, in 1862, collected all the data on this subject, and by circularizing his colleagues added much information. Curiously enough, although he states he never treated the disease himself, he drew up the most systematic work upon the subject which had appeared up to that time.

Wyman, in 1872, published in this country the most systematic work on this subject, which, I think, has ever appeared. It compares favorably with anything published since. Like Bostock, Wyman was a sufferer from the disease.

"Hay fever" is a misleading, unscientific term; it has nothing to do with hay, although the smell or dust of hay, like any other dust, may produce unpleasant sensations. "Hay asthma" is again open to objection, for difficulty in breathing may be less constant and conspicuous than affections of the eyes and nose. The term bronchitis is also objectionable, for this disease is scarcely an ordinary inflammation, nor is its principal seat in the air-tubes.

The term catarrh indicates a condition of the mucous membrane, accompanied by a flow of a thin secretion not necessarily due to inflammation; it is the most prominent symptom in this disease. The term "autumnal" is open to objection because, by the 21st of September the autumn begins, and by this time the disease is generally nearly over. However, in England, August is considered as the first month of autumn, and we might follow this example.

It is a curious fact in this condition how few colored people have the disease; Wyman, in his researches, only found one, and even in this case the father was an Indian. It is difficult to decide what influence the profession or occupation has on this disease. In the first place, many men change their work from time to time; again, others in the same line of work live under vastly different conditions. Curiously enough, change of occupation has little or no influence upon the disease, for few escape it by such a change, unless it includes removal from the catarrhal region. Generally it is thought that those having indoor occupations requiring but little manual labor are the worst sufferers. Hence, the disease occurs more among the richer and more favored classes.

In contradistinction to autumnal catarrh, we have "spring catarrh," beginning in spring or summer with subjective symptoms similar to those of an ordinary conjunctivitis, though there is only little increase in the secretions. Generally there is a circumscribed injection of the peri-corneal vessels, and in this situation small gray, semi-transparent nodules of a cartilaginous consistency appear. There may be no distinct nodules, but a continuous and swollen infiltration at one part of the conjunctiva surrounding the cornea; this swelling, though it may overlap the

cornea, is clearly defined, and the cornea remains perfectly clear, while the immediately surrounding portions of the conjunctiva assume a whitish appearance. Of course, the accompanying objective and subjective symptoms are subject to exacerbations and remissions during the course of the disease; diminishing in the autumn, the infiltrations flattening down or disappear, leaving, however, a certain degree of opacity just at the border of the corea; but in the following spring the attacks recur, and this state of matters may run on for years. The form just described is the mildest and seems to be the best known to the profession. Often on everting the lids the surface of the tarsus, especially of the upper lid, is found to be whitish, as if covered with a thin layer of milk; in more severe cases the tarsal portion of the conjunctiva of the upper lid is covered with flattened granulations, the edges of which lie close together. Pinch up the lid from side to side and the separate granulations come into prominence, showing, too, the deep furrows between them. A thin probe can then be passed in under them, so that they can be shown to be mushroom-shaped, perching on narrow pedicles.

As a result the granulations make the evelids droop, and the appearance at first sight closely resembles that met with in trachoma; these flattened granulations are the most characteristic changes in the severer cases, and, although they do not altogether disappear in winter, they are subject to the same exacerbations as are met with in the conjunctival swelling surrounding the cornea.

In consequence of this resemblance Grut believes that the disease is often mistaken for trachoma, and gives the following points of the differences by which they are clinically sharply defined; the trachomatous granulations never lose their rounded surface and are not separated by deep furrows, whereas those of spring catarrh are flattened and separated by furrows. Trachoma leads to cicatricial changes, deep-seated linear cicatrices; the infiltration in trachoma passes into the tarsus, leading to alterations in its shape, to trichiasis and to entropion, but this never occurs in the case of the granulations characteristic of spring catarrh; when the disease, after many years duration, has disappeared, the conjunctiva is left smooth and whitish, but is not the seat of any actual cicatricial formation and the tarsus retains its form. A long-continued trachoma is almost always associated with pannus. In "spring catarrh," the cornea is never affected; this is of prognostic importance, and, besides, interesting as showing that trachomatous pannus has not a mechanical origin—that is, is not set up by the friction of the uneven surface of the lid on the cornea. This is more especially evident from the fact that the spring catarrh granulations are much harder and often more massive than those found in trachoma. The granulations never appear on the lower lid. Notwithstanding the great chronicity of spring catarrh and its rebelliousness to any treatment, cases are occasionally met with in which all the changes disappear in an almost incredibly short space of time without leaving a trace. The granulations differ also anatomically from the trachomatous form and consist mainly of a hyperplasia of the superficial elements of the conjunctiva. The affection is always bilateral and is met with in children and in adults under middle age.

With reference to the name "spring catarrh" the following remark may be quoted: "It has been generally supposed that the disease has an intimate connection with the warmer seasons of the year, and comes and goes with those seasons; hence its name, but the granulations do not disappear in the winter; it is doubtful, indeed, if the summer exacerbation, which certainly takes place, is the most characteristic phenomenon in connection with the affection. The same holds good of other chronic diseases of the conjunctiva. Phlyctenular conjunctivitis flourishes in spring and summer; the severe exacerbations of trachoma also take place during the warmest summer weather. Heat, with dry air and dust, is certainly irritating to a mucous membrane disposed to inflammation." The treatment recommended is the destruction of the granulations with the thermo-cautery; while applications of sulphate of copper and nitrate of silver will do harm.

Mackenzie asked, What constitutes a typically healthy nose? This authority seemed to think that there is a very large difference in individuals, even in health, and suggests that a typically healthy nasal cavity is difficult to find. Every nasal cavity which shows a departure from the normal type should be regarded as in a diseased condition. The true test, however, in these cases is this: If we find diseased conditions, the removal of which cures an asthma, it must be due to intranasal conditions. The general statement may be true, that all cases of asthma have intranasal disease, without giving definite lesions. This may seem rather advanced, when we find eminent physicians of the present day, such as Fothergill, Flint, Loomis, and others, adhering to the theory of bronchial spasm, and not mentioning pathological conditions in the nasal chamber as a cause of asthma.

It has been claimed by some authorities that asthma is essentially a nervous disease, the nerve centers being the seat of the essential pathological condition. The phenomena of asthma, distressing respiratory sensations, and demand for extraordinary respiratory efforts, immediately depend upon spasmodic contraction of the cells of unstriped muscular fiber in the bronchial tubes; the phenomena being reflex actions. The extent to which the nervous system is involved differs much of course in different cases, being, in some, restricted to the nervous apparatus of the air-passages themselves. In a large number of cases, the pneumogastric, nerve in both gastric and pulmonary sections, is the seat of the disease. In a large class of cases the nervous circuit involves other nerves beside the pneumogastric. There is still another class of cases in which the irritation is central. In a certain proportion of cases the irritation is humoral. The "bronchial spasm-theory" of the old writers was fully adopted as the result of large clinical observation and study by Salter in the several editions of his classic work. According to him asthma is essentially a neurotic disease, and this theory, with some modifications, is the one adopted at the present day. Yeo attempts to draw an analogy between the extreme distention of the lungs in asthma and abdominal distention caused by hysteria; this is curious perhaps, but scarcely har-

monizes with clinical observation; there is also similar analogy between asthma and spasmodic croup. The sudden nightly attacks, with daily remissions; a certain periodicity observed in the attacks of both diseases; a dry first stage and moist second stage; all point to a similarity between the two diseases. Again, the tendency to asthma begins at about the time when the tendency to spasmodic croup ceases. Both croup and asthma may be due to disorders of innervation of the larynx, on the one hand, and of the bronchial tubes, on the other, the immediate cause of the paroxym being excess of venous blood in the medulla.

In 1872 the "spasm theory" was disputed, and a more plausible suggestion advanced, it was the cause of the paroxysm lay in a paresis of the vasomotor nerves presiding over the vessels of the bronchial mucous membrane. Under the influence of this vasomotor paralysis, there occurs, from some cause, a sudden letting up of the control which is exercised over the caliber of the blood-vessels, whereby they become distended to such an extent as markedly to interfere with the passage of air through the bronchial tubes. This paralytic condition having lasted several hours, the membrane maintaining a dry condition, as is always the case in the first stage of the inflammatory processes, there follows an escape of serum and sero-mucus, thus relieving the engorged blood-vessels, which soon regain their normal caliber, coincident with the cessation of the paroxysm. Hay fever has been regarded as simply a periodical coryza or influenza, in which the paroxysms were characterized by the same symptoms as are met with in an ordinary cold in the head. As a matter of fact, however, acute rhinitis and an attack of hay fever differ in a marked way, in many respects. This fact was soon recognized, and a new name was given to hay fever, "vasomotor rhinitis." Here is a connection between the two diseases, and, clinically, the two diseases are intimately connected; for a large number of hay-fever patients suffer from asthma after the onset of their nasal symptoms. A natural division of cases of asthma into "hay asthma" and "perennial asthma" is thus made, the one term being applied to those cases that are attended with hay fever, the other to those cases in which asthma occurs without reference to seasons and without the preceding influenza. How far are these two disease one and the same condition; and, again, what is the connection between hay fever and asthma, and are they not, in many respects, the same disease? Bosworth first advanced the view that hay fever and perennial asthma are virtually one and the same disease, the one being a "vasomotor rhinitis," the other being a "vasomotor bronchitis," the paroxysms being excited, in each case, by some peculiar atmospheric condition. The atmospheric condition in hay fever, is the presence of the pollen of flowering plants or some other vegetable product; the atmospheric condition in "perennial asthma," which is those cases of asthma occurring during the whole year, not depending upon hay fever, is dependent upon some obscure element which we are unable to trace with the same degree of definiteness as in hay fever. Hay fever is dependent upon three conditions: A neurotic habit, as was conclusively shown by Beard; the presence of pollen in the atmosphere, as shown by the unrivalled experiment of Blackey; with a disordered condition of the nasal passagess. Now, the view that Bosworth advocated is that asthma also is dependent on three conditions: A general neurotic condition, as demonstrated by Salter; a diseased condition of the nasal mucous membrane; some obscure condition of the atmosphere exciting the paroxysms. The view as regards the neurotic condition is generally accepted; that attributing it to the atmospheric condition, is one which must be generally accepted by all observers considering the diurnal and seasonable periodicity of the paroxysms, while the nasal condition as a predisposing cause of the attacks is a novel view, and might be looked upon as the specialist's hobby.

Somers, in an address before the Philadelphia County Medical Society, within a few weeks, has reported on the serum treatment of so-called "Hay Fever." His conclusions are rather favorable; he uses the serum as prepared by Dunbar, dropping one or two minims into each eye and nasal chamber whenever an attack of hay fever is expected. Occasionally the dried serum mixed with an inert powder was used in the nasal chambers. These are Somer's conclusions:

The results from the serum treatment in these cases, with but one exception, proved most gratifying, and in the only case in which hay asthma occurred, it was promptly controlled, the results thus agreeing with those of other observers who have found that the hay asthma was relieved by the application of antitoxin to the nose. It has apparently no effect, however, upon an accompanying bronchitis or semi-asthmatic condition not dependent upon the hay fever.

SOME REMARKS ON PNEUMONIA,* WITH CONSIDERATION OF A CASE OF THE ACUTE TUBERCULAR FORM.

BY LOUIS FAUGERES BISHOP, A.M., M.D.,

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PNEUMONIA is a general term covering inflammations of the lung, but it has come more particularly to be used with reference to certain special diseases which are called by particular names, as for instance, acute lobar pneumonia, this being a disease characterized by inflammation of one or more lobes of the lung, the whole lobe being involved, while the name broncho-pneumonia is applied to involvement of the lungs occurring in patches throughout the lungs, and not involving a whole lobe. The term pneumonia, as mentioned, is used with reference to any inflammation of the lungs, so we have in connection with tuberculosis, tubercular pneumonia.

This somewhat indefinite use of the term "pneumonia" has led to not a little unkind criticism of physicians who use the terms a little differently. When we speak of a person having pneumonia we ordinarily think of one taken suddenly severely ill with a very severe disease which is dangerous, and which is liable to be fatal—in other words, we usually think of acute lobar pneumonia as the disease people have when they are said to have pneumonia, but the term has a wider application, and it is perfectly safe to say that an old person who through feebleness and bronchitis has developed dis-

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ease of the lungs, has pneumonia, and the same is true of children when they get bronchitis, and it goes beyond an ordinary bronchitis and affects the lung tissue itself, it is perfectly fair to say that the child has pneumonia. So that when physicians are accustomed to use the term in a broader sense and say the patient has pneumonia when he has not got an acute lobar pneumonia, no criticism should be made, as it is simply a different way of using the term. However, it is always better to define just what pneumonia is meant.

Acute lobar pneumonia is the most important type of pneumonia, and is a disease that runs a well marked course, and is extremely fatal. It is hard to get statistics, but the mortality in hospital cases is usually 30% to 50%, 3 to 5 out of every 10 succumbing to the disease. Next to tuberculosis pneumonia is the most fatal disease in civilized countries. It carries off a very large number of people every year, and is especially fatal in old people, the mortality increasing as the age of the patient advances. In very old and very young people the type of the disease is different. Young infants practically never have lobar pneumonia, but always broncho-pneumonia, while in very old people we again find that pneumonia is a somewhat indefinite disease. In young and middle aged people we find the most typical cases.

The cause of pneumonia is the activity in the lungs of a certain germ which is called the pneumococcus. This germ is very widely distributed in nature so that it is present nearly all the time in our surroundings, and a good deal of the time it is present in our own respiratory passages, so that it requires something more that the presence of the germ to produce the disease. There must in addition be some cause whereby the vitality of the tissues has been decreased. This is shown by the fact that if a number of men like a body of troops are exposed to cold wet weather, a certain number will devolop pneumonia; again if the lungs have been exposed to any of the infectious diseases like la grippe, or, if a person has had a severe cold which has been neglected, such a one is liable to suddenly develop pneumonia.

The onset of lobar pneumonia is very sudden. The person is perfectly well when suddenly he is seized with a severe chill, the temperature goes up, the patient develops some shortness of breath, respirations are increased, and there is usually a pain in the side. At this time an examination of the chest does not reveal anything more than the signs of congestion. In the course of two or three days, however, there will be developed very distinct signs of consolidation in one or more lobes of the lung. The fever very soon after the beginning attains to a considerable height, and then there is not much variation until about the seventh day when the fever begins to come down if the patient does well, and it comes down either very suddenly or gradually, there being two ways in which the pneumonia patient defervesces. The day of defervescence centers about the seventh, but it may occur on the sixth or on the eighth, as early as the fifth or as late as the ninth day, but the seventh day is generally the critical period. If the fever comes down satisfactorily, and the patient's strength has been maintained, the lung gradually clears up and the patient makes a complete recovery. A person who has had pneumonia and gets well is often just as well as though he never had the disease as it does not usually leave anything behind.

The early diagnosis of pneumonia is not by any means easy. Patients start with all the early signs of pneumonia and then the whole picture clears up, and it does not develop. This happens a great many times, and is one of the things that make it difficult to say what value the measures that are taken early in pneumonia have to abort the disease, because a certain number of cases start in to have pneumonia and then clear up without its development. This condition of acute congestion of the lungs does not differ in many instances from that which precedes the real disease, so that like other diseases it often is not possible to make a diagnosis of pneumonia within 24 to 48 hours. In other cases the signs of pneumonia develop with all the symptoms of acute pleurisy, the patient complaining bitterly of a pain in the side, and the other symptoms being obscured, so that in a good many cases one is at first at a loss to know whether a person is developing a simple pleurisy or pneumonia.

The lungs are roughly divided into four lobes. Acute lobar pneumonia usually involves one of the lower lobes and the others are free. It may involve 2, 3 or all the lobes, but in the latter case the patient invariably dies. The lower lobes are more often affected than the upper, but lobar pneumonia of the upper lobes is not at all rare.

In broncho-pneumonia, on the other hand, we have a very different disease. Acute lobar pneumonia gives the type of an acute infectious disease—the person is suddenly taken ill with a chill and high fever, the temperature goes up, stays there until the day of defervescence, and then it often comes right down to normal after which convalescence follows. That is the type of an acute infectious disease, to which category scarlet fever, diphtheria and others belong. Acute lobar pneumonia seems to be a disease of the whole body which particularly affects the lungs. Broncho-pneumonia is a much more indefinite disease. We will say that a child or old person has had some debilitating disease which has sapped his vitality; he has a bronchitis which has caused an inflammation of the lining of the bronchi—the tubes of the lung. When this inflammation strikes a little deeper than the lining of the bronchi and involves a little of the tissue around the bronchi and bronchioles we have broncho-pneumonia, then instead of a single lobe being involved there are scattered patches throughout the lungs which are the seat of inflammation. Thus you see that when we listen to the chest of a patient with acute lobar pneumonia we can be surer of the diagnosis because the lung is consolidated, and the patient has acute symptoms, while on the other hand, when a patient has a very bad bronchitis, when the breathing is feeble at the base of the lungs as it is in weak people, when the patient is very sick and examination difficult, it is not always easy to say just when the bronchitis has extended from the interior of the tubes to involve some of the lung tissue, so that broncho-pneumonia is a much more indefinite disease. Broncho-pneumonia comes on gradually, the patient is sicker than he was, the fever is a little higher and more irregular and a careful examination shows certain spots in the lung where there are the signs of consolidation in patches. A patient with broncho-pneumonia does not usually have the sputum of pneumonia. The sputum of lobar pneumonia is quite characteristic —it is a rusty blood-stained sputum in which blood is intimately mixed with mucus. In broncho-pneumonia we may get hemorrhage from the bronchi, but not or-

dinarily. The course of broncho-pneumonia in a very old person, such as we often have in our wards here, is that he becomes sick and feeble, has some fever and a little quickening of the respiration, and perhaps a cough, grows weaker and weaker and finally dies without any very definite symptoms.

In connection with our consideration of pneumonia I want to show you this man who has had an attack which in its onset resembled in some degree the onset of a good many cases of pneumonia. He had an acute congestion of the lungs. If with the onset of this trouble he had had a chill, which he did not, we would have felt very confident that he was developing pneumonia. However, he did not have a chill, and there are other signs which make that, though a possibility, not exactly probable.

The patient is 20 years old. His previous health has been fairly good except that last April he came to the hospital with pleurisy and bronchitis. He recovered from this and went to work in the hospital as elevator man. Later in the summer he had another attack of pleurisy. On the afternoon of the day before yesterday he began to feel decidedly sick; he had a tight feeling in his chest and was very weak. When I saw him he had just expectorated a large quantity of blood. Examination of the chest showed a great many moist râles all over the chest and his temperature had suddenly risen to nearly 102. He was immediately put upon stimulants, his chest was cupped and poultices were applied. Since that time he has continued to spit up blood in moderate quantities. As I examine him to-day I find moist râles limited to a great extent to the left side of the chest. I find resonance, as I percuss over that side somewhat impaired, and the vocal fremitus, that is the voice sounds, are somewhat increased.

We have then a man with a history of repeated attacks of pleurisy and bronchitis, who, while in apparently good health suddenly developed very marked congestion of the lungs with hemorrhage. We find on examination that there are signs of a moderate degree of consolidation of the left lung; his temperature has been irregular. It has gone up and down, and to-day is 100°. His respirations to-day are much less frequent —yesterday they ran as high as 45 to 52, but to-day they are down to 28, showing that the lungs are able to do their work with a fair degree of ease.

Now the question arises whether this man has pneumonia, and if so, what kind of pneumonia is it? Is it a lobar pneumonia, a broncho-pneumonia or a pneumonia of one of the other types? The physical signs are not very different from certain cases of pneumonia, of which we saw a good many in those years during which the grip was epidemic, which was more of the type of broncho—than lobar pneumonia. What I fear in this case, however, is that the man has a rather unusual type of tubercular pneumonia with an acute onset. The diagnosis would be confirmed by the discovery of the bacilli later in the sputum. At this time, so early in the disease, there would not necessarily be any germs, because in this form of pneumonia the infection probably comes through the blood, and not through the bronchi. Any infection entering the lungs from the bronchi, for some reason which has never been explained, almost always attack the upper portion of the lung, and we have the disease developing in a single small spot and spreading from there, but when on the other hand the infection comes through the circulation the germs are scattered through the lungs, and we have the disease commencing in little patches through the lung; we find no germs in the sputum until some of these little inflammatory spots have reached a considerable size and have discharged into the bronchi. For that reason, in a case of this kind, if it is an acute tubercular pneumonia, the infection came through the circulation. The whole lung is involved as in lobar pneumonia, that is, upper and lower lobes of the left lung, and we have an acute tubercular inflammation,—a tubercular pneumonia, which as such will run a different course.

These acute tubercular inflammations are decidedly different from the chronic ones, and we are not at all certain that an inflammation of this type is not just as susceptible of getting well as a tubercular peritonitis, which you have seen treated surgically, and which have recovered, and in the same way it may be possible for this tubercular inflammation to clear up, although, of course, the fact of the repeated attacks of pleurisy makes it less probable.

The treatment of this case in the early stages was the treatment of an acute congestion of the lung. Whenever we find a patient who has been attacked by congestion of any part of the body we believe if we can limit that congestion early in the disease we will limit the spread of the disease, and for that reason in a patient with acute congestion of the lung we try to reduce the inflammation by applying cups and poultices and giving aconite and other drugs to reduce the inflammation. These measures are generally valuable very early in the disease, but later on they are not of so much importance. This man should be treated by rest in bed during the acute stage, his nutrition should be kept up as much as possible, and we should use those drugs that we believe are beneficial in tuberculosis.

MATERNAL IMPRESSIONS.*

BY J. W. COOLIDGE, M.D., BRISTOL, N. H.

IN looking over the literature on any subject in medicine, our attention is drawn to the alternating approval and disapproval that seems to sway the profession.

To show first how strongly the subject of this paper has been disapproved, I quote from an article by H. G. Beck, M.D., of Baltimore, Md., in which he says:

"Of the three most commonly alleged causes, viz., maternal impression, mechanical impression, and injury to the ovum, the former was practically the only one receiving recognition prior to the present century. Indeed, it is remarkable that such an inexplicable and illogical theory should have been accepted by all races and people for nearly four thousand years. The earliest record illustrating the antiquity of this belief is made in the Bible (Gen. xxx.). The subject has gained entrance into fiction through the minds of such men as Goethe, Scott, Dr. Holmes, Dickens, Reade and Hawthorne."

And yet you will please note that he assumes that all these "races and people for nearly four thousand years" have believed an impossibility.

Dr. J. G. Fisher, in a paper entitled, "Does Maternal Mental Influence Have a Constructive or Destructive

* Read before the New Hampshire Medical Society, 1903.

Power in the Production of Malformations or Monstrosities at any Stage of Embryonic Development?" concludes with twenty-three deductions, No. 4 of which reads: "That there is nothing like law in the alleged results of maternal mental influence in the production of malformations;" No. 16: "Monstrosities are not the result of embryological and physiological laws; they are the products of embarrassments to normal development."

In the Transactions of the Gynecological Society of New York, for 1886, the late Fordyce Barker, M.D., LL.D., comments on the above as follows: "But I think the weight of authority must be conceded to be in favor of the doctrine that maternal impressions may affect the development of form and character of the fetus." Again he says: "Still there are cases which cannot be doubted, but which in the present state of our knowledge of development, and the connection between the mother and the fetus we cannot attempt to explain."

Quoting from the late Professor William A. Hammond, Ex-U. S. Surgeon-General: "Doubtless many of the stories told, illustrating this theory, are false, many others are exaggerations, and many are mere coincidences; but after eliminating all these classes there still remains another group, which has every appearance of being based upon actual truth, and which it is impossible for the candid inquirer to reject."

I wish to call attention to the fact that the point which seems to stand foremost as an objection to the belief in maternal impressions having any influence on the fetus seems to be the impossibility of proving its truth, by producing such specimens at will, rather than evidence to prove that it cannot be possible.

Applying this rule to cases of abortion. One woman will abort after a slight jar, while all women do not. One will abort by riding in the saddle, and others no more used to such exercise may ride any and all times without the least tendency thereto. The mere sight of another woman in labor has been sufficient cause for abortion in some nervous women, and all obstetricians caution against fright for the mother, lest it cause abortion, yet it does not always produce abortion any more than a mother always marks her child by the unpleasant things she sees and feels.

There must be a wide difference in the physiological action of the nervous system in the one class of women, from that of the other, for as yet we find no other explanation for these wide variations.

To apply this explanation: In looking over medical literature on hereditary drunkenness we find the following in 1892 from the pen of G. Archball Reid, M.B.C.M., F.R.S.C.:

"Every drunkard's desire for alcohol must contain three necessary factors, one inborn and two acquired. First, namely, the inborn, the drunkard must be so constituted as to be capable of enjoying deep indulgence; for, of course, as I have already said, no one would be drunken who was not capable of enjoying drink, whether as a means of deriving positive pleasure, or as a means of relieving physical and mental discomfort or pain. This factor is certainly transmissible to offspring. The man who has it is cursed with the 'alcoholic diathesis,' with the 'predisposition' to drunkenness. Thus, most savages are keenly capable of enjoying drink, and their offspring inherit the capacity."

Thomas Morton, M.D., commenting on the above, says: "This potential inebrity varies within wide limits, and what is inherited in the case of those who have it most strongly is not a simple super-normal capacity for delighting in alcohol or other narcotic drugs, but something very much more complex, which may be briefly described as a constitution in which the balance between this capacity and the power of self-control in the face of temptation is disturbed, either by excess of the one or the other, or possibly both, and in which a morbid crave is easily set up."

Maternal alcoholism, of course, affects the developing child directly through the circulation, apart from true inheritance.

And we suggest, may not this loss of balance between the nervous system of the mother, and the relative strength of the cause be the factor which we are looking for, to account for the effects of the maternal impressions in the one case as compared with the other?

Dr. Hirst, in speaking of the influence of maternal emotions upon the fetus, says: "Maternal emotions and impressions may affect the embryo or fetus. Many cases of mental peculiarities or diseases, or of physical defects, that have been attributed to a strong impression upon the mother during pregnancy, are no doubt to be explained by the existence of some systemic disease, as syphilis, nephritis, diabetes, cancer, or chronic lead poisoning in either father or mother; by an arrest of development, by mechanical disturbance of the ovum, or, in the case of intrauterine amputations by the formation of amniotic bands, or the disposition of the cord.

"But there still remain well authenticated cases of congenital defects or peculiarities which bear too startling a resemblance to the cause of the impression upon the mother during pregnancy to be dismissed as mere coincidences. One of my patients, less than six weeks pregnant, was on one occasion seized by the ear and dragged about the room by her enraged husband. The child, born at term, had a triangular piece lacking from the lobe of the corresponding ear."

On other subjects we should admit such evidence as this, and say that maternal impression does sometimes produce such results. Shall we not lose the respect of the more intelligent in our clientèle if we assume that a pregnant woman may attend prize fights, bull fights, hangings and whatsoever she pleases, and be absolutely safe from making any impression, mental or physical, on her child?

Is it not much more in accordance with the evidence on the subject to council her to secure for herself freedom from all that startles, excites, or causes strong emotions, particularly those of an unpleasant nature?

I have but one case in my own practice to report.

Mrs. R., aged 31, of good intellectual ability, and not superstitious, gave birth March 13, 1902, to a still-born, seven months, male child.

Fetal movements were noticeable the previous evening, and death seemed to have been due to a long second stage, it being three and one-half hours in length.

The child having no neck, the head was almost immovable on the shoulders, so much so that it was a left brow presentation, the left shoulder following immediately, and so rigid were these parts that the maternal coccyx was strained backward sufficiently to cause extreme pain for a few days.

The child's eyes protrude far beyond the brows, and there appears to be no brain cavity, except two little sacs on the back of the head, with a smaller one between and posterior (cerebellum). There are two parallel lines of bony prominences extending from the back of the head

downward as far as the last dorsal vertebra, separated by a space a little more than an inch wide, over which there is no skin, leaving the flesh like a fresh wound. The bony prominences are bordered by a thin osseous scale, and this for the upper two-thirds by a narrow line of fine hair. The body and extremities are otherwise normal.

Mrs. R. has one child, four years old, and has had one abortion. She is not easily frightened, and at first could remember nothing to account for the deformities. Later she remembered carrying out a frog the cat had killed and brought into the house at about the third month of her pregnancy.

The gross appearance of the child's back is that of the back of an injured frog when he elevates the flat surface extending backward from the head.

FAMOUS OPERATIONS IN SURGERY AS DESCRIBED BY THEIR ORIGINATORS.

BY WM. WORMLEY, M.D.

MANY epoch making procedures have been reported in medical literature, yet as a rule they are not directly or correctly quoted. I have collected some of the best examples, and give them as follows in abstracts from the original sources:

Whitehead describes his procedure for the radical cure of hemorrhoids which he has employed in upward of three hundred cases, with complete success in the sequel, and such a favorable course during treatment that in no instance have symptoms arisen which have given him cause for serious anxiety. It consists in thoroughly paralyzing the sphincters by digital stretching; dividing the mucous membrane around the entire circumference of the anus, a short distance from its junction with the skin, by means of scissors and dissecting forceps, and dissecting the whole diseased or pile-bearing area from the external and internal sphincter until healthy mucous membrane is reached, when it is drawn down and stitched to the skin, and the hemorrhoidal mass removed. Allingham finds the chief disadvantages of this method to consist in "the lax and irregular condition of the anus and the resultant trouble in separating the mucous membrane from the skin; the time required in twisting the vessels in bad cases and the length of the operation."

To obviate these difficulties Allingham has devised an instrument with four arms, each of which seizes the mucous membrane at its junction with the skin, and can be made to separate from its fellows by means of a screw, converting the anus into a square looking aperture. The line of incision separating skin from mucous membrane is now clearly defined, and by using the instrument as a handle the parts can be held in the most favorable position for rapid dissection up to the internal sphincter. Opposite the position of each large pile a thread is passed through the skin around the stems of the pile, brought out through the skin again, and tied tight enough to prevent hemorrhage. The drawn-out pile area is cut off just in front of ligatures, the mucous membrane is sutured to the skin, and the parts powdered with iodoform. Weir reports six severe cases of hemorrhoids treated by the Whitehead method. In all, the results were satisfactory. The convalescence was rapid and the cure complete. In regard to the choice of operative procedure, he says: "While for less severe cases of hemorrhoids the operation of injection with carbolic acid (and preferably with the 1:20 solution) is to be first thought of, and while for the more decided form of this disease Allingham's method (ligation) yet stands unequaled, yet for extensive conditions of hemorrhoidal disease which have been hitherto treated by tying off three, four, and sometimes more masses, I believe that greater efficacy and greater permanence of cure will be accomplished by the resort to Whitehead's method, and that less after-discomfort to the patient will be felt than by the well-known method of ligature."

Bardenheuer's operation for extirpation of the rectum is as follows: Dorsal position, with elevation of the buttocks. The incision in the middle line exposed the coccyx and lower portion of the sacrum; removal of the latter by means of the bone forceps. The sphincter was not divided. The unopened rectum was freed from adhesions by means of tearing with the fingers and blunt instruments, a provisional ligature was placed in the healthy parts above and below, and the tumor was excised. After closure of a peritoneal rent made while isolating the tumor, the continuity of the bowel was again restored by suturing the upper and lower ends together. The sacral wound was left open, the cavity about the rectum being carefully tamponaded with iodoform and iodide of bismuth gauze, and a thick rubber tube was placed in the rectum. The duration of the operation was thirty minutes. Bardenheuer has operated in this manner upon thirteen cases, losing two; one from exhaustion in twenty-four hours, one from the rectum being constricted in a rent of Douglas's pouch and becoming gangrenous. Konig subjects his patients to a preparatory course lasting from four to eight days, thoroughly emptying the bowels and withholding food which leaves much detritus. A posterior central incision is made and the bowel torn loose with the finger, often high above the peritoneal attachment. All involved lympathic glands are removed. The wound is thoroughly washed out with antiseptics (carbolic or salicylic solution) sprinkled with iodoform and either packed with iodoform gauze, after the insertion of a few sutures, or drained by means of numerous deep sutures passing to the rectal walls. Of the sixty cases operated upon, twenty-four per cent. died; ten per cent. remained cured after three years; eighteen per cent. after two years. Three patients suffered from recidivity after they had remained well for upward of three years. In regard to the function of the new rectum, of twenty-one patients examined, but six were able to retain their feces; three suffered also from stenosis.

Von Germann considers that the danger of rectum extirpation is very much lessened, and prefers this procedure to colectomy; he mentions Bramann's success in this operation—of twenty-seven cases, with twenty-six recoveries.

Von Bergmann has reported a remarkable case of intestinal cancer successfully treated by operation. The seat of disease was the descending colon at the beginning of the sigmoid flexure; the nodulated tumor was closely adherent to the concavity of the ileum. On laporotomy and exposure of the diseased area, a second intestinal loop, supposed to be small intestine, was found so firmly matted to the mass that it could not be separated, but, with the diseased colon, was resected. This resection involved a large piece of the mesocolon which had become involved in the primary growth or its iymphatic extension, and many ligatures were necessar-

ily applied to check the very free bleeding. The continuity of the healthy intestine which had been resected simply on account of tight adhesions, was restored by a circular intestinal suture; the two ends of the colon, however, after the cancer-bearing portion had been cut away, were stitched to the external wound, making an artificial anus. On the second day after the operation high temperature, tympanites, pain and vomiting pointed to the development of peritonitis. The wound was opened again and the resected ends of intestine, which had been sutured together, were drawn out.

A portion near the line of suture was discolored and clearly gangrenous; the thread was removed and both ends secured to the external wound; the latter now contained four intestinal lumina. The general condition of the patient improved, pain and swelling disappeared, the wound suppurated. Almost four weeks later a gangrenous piece of intestine nearly a foot long was discharged. The suppuration diminished, and there remained simply an artificial anus, about the size of a silver dollar, from which folds of prolapsed mucous membrane projected. When an examination of this opening was made with a view to its closure, in place of four intestinal openings, but two were found, separated from each other by a thick partition wall. This was explained by the fact that both loops of resected intestine were from the colon; the portion between the two resections having sloughed, probably on account of its circulation being cut off by the many ligatures applied while removing the diseased mesocolon, was discharged en masse, and left only the extreme upper and lower intestinal extremities adherent to the surface wound.

Hanford reports a case which commenced as a typical example of perforating ulcer of the foot; and afterward became symmetrical, affecting the soft parts over the metatarso-phalangeal articulations of both great toes. Sensation was not sufficiently interfered with to prevent pain on walking being his chief complaint. It was the pain that made him beg to have the toe amputated. The ulcers frequently healed after prolonged rest, showing that mechanical injury, in addition to altered innervation, was necessary for the continuance of ulceration. The toes were eventually amputated close to the site of ulceration, and yet the healing of the wounds was fairly rapid and sound. Though now associated with several symptoms of tabes dorsalis, the perforating ulcers existed for six or eight years, at least, without any discoverable sign of locomotor ataxia, and even now the ataxic symptoms proper are very slight indeed.

If the positive assurance of the patient that the ulcer of the tongue was not preceded by any induration, is accepted, it is an example of a very rare condition: namely, perforating ulcer of the tongue; and, moreover, a perforating ulcer which has healed.

On the whole, it appears to be a case of tabes dorsalis in which the peripheral multiple neuritis, which is almost invariably found at some stage, has appeared early, as shown by the ptosis, optic atrophy, joint lesion (knee) and perforating ulcers. It is doubtful whether it may not be an instance of true tabes dorsalis commencing in a peripheral neuritis, as suggested recently by Professor Leyden, and affecting the posterior columns of the cord secondarily. In this suggestion he assumed peripheral neuritis to be the most probable cause of the joint lesion as well as of the perforating ulcers.

A year later he remained in very much the same condition. The ulcer remains healed, but he has not had a fresh one on the upper surface of the stump of the left great toe. This was eventually healed. He only walks about the house with a stick. The knee remains unaltered, except that it gives way more on walking, but it continues painless. The tongue has not broken out afresh. He walks without any inco-ordination of movement; there is no jerking of the limbs or stamping of the heels.

From observation in over three hundred female subjects, women and children, in which the lympathics were injected with quicksilver, Poirier has corrected several errors of former observers. The lympathics of vagina form anastomosing networks in the mucosa and submucosa and empty into three sets of efferents, the upper entering the iliac glands, the lower the pelvic glands. The lymphatics on the outer side of the hymen enter the inguinal glands. The middle series follow the vaginal artery to the upper set of glands of the iliac plexus along the sides of the rectum. This accounts for the enlargement of these glands in cases of inflammation of the vagina, when they can often be felt; sometimes they suppurate and discharge the pus into the rectum. In the uterus there are mucous and submucous plexuses, also a subperitoneal plexus communicating with the former; this subperitoneal network is found in all portions of the uterus, which is covered by peritoneum, and extends backward over the peritoneal covering of the tubes and laterally over the peritoneal covering of the tubes and laterally over the broad ligaments.

Sappey denied that there was a true lymphatics that communicate with the plexuses in adjacent organs—an important anatomical fact in conenction with the extension of inflammatory process. There are two sets of efferent uterine lymphatics. One set surrounds the cervix and extends laterally into the parametric tissues, along the lower borders of the broad ligaments, behind the uterus to the lateral walls of the pelvis, when they ascend to the glands at the bifurcations of the iliac arteries. The latter can be felt if enlarged, as they are distant only one and one-half or two inches from the uterus. The writer has never discovered the gland described by Lucas-Chamionniere, resting in the vaginal vault at the side of the cervix; but at this point there is usually a dense network of lymphatics.

The efferents from the corpus uteri consist of two or three large vessels which are situated in the upper border of the broad ligament, following the course of the ovarian artery. They lie between the tube and the ovary, receiving numerous branches from them. After arriving at the level of the fifth lumbar vertebra the opposite trunks run parallel to each other, but do not communicate, and enter the lumbar glands at a point opposite to the lower borders of the kidneys. A few small lymphatic vessels from the uterus extend along the round ligaments to the inguinal glands, as figured by Mascagni.

Poirier has never succeeded in injecting these distinct lymph-plexuses in the tubes, as in the uterus, but he is convinced that they exist. The lymphatic system of the ovary is quite intricate. There are perifollicular networks, vessels from which converge to enter large efferents that emerge from the hilus to communicate with those from the uterus. Valves are comparatively few in number throughout the pelvic system so that retrograde infection is quite possible. The frequency of

periuterine adhesions is due to this free intercommunication; such adhesions may result from a simple endometritis, and always have a rich supply of lymphatics. Lymphatics play an important part in pelvic inflammatory processes. The idea that inflammation extends from the endometrium to the peritoneum by direct continuity through the tubes is erroneous; if this were true, the distal ends of the tubes would be found to be most diseased. In all inflammatory diseases of the uterus the lymphatics are the direct carriers of infection, whether the resulting complication is simply local irritation, abscess-formation, or general peritonitis. The exudations resulting from lymphangitis separate the folds of the broad ligaments. That the cellular tissue and peritoneum are not the primary seat of the trouble is proved by the fact that the middle portion of the broad ligaments, which are comparatively free from lymphatics, are never the first to be affected. Fermillon's assertion that inflammation of the broad ligaments is always secondary to disease of the tubes, and that abscesses are nearly always developed outside of the ligaments, is disproved by this fact. Salpingitis occurs by direct extension along the mucous membrane, as the lymphatics of the uterus, and those of the tubes are not intimately connected, and, moreover, the lumbar glands are never affected in tubal inflammation. On the other hand, the ovarian lymphatic system communicates directly with the uterine, so that abscess of the ovary may occur in a case of endometritis, where the tube is not affected. It is possible that the lymphatics present in adhesions may also serve to transit infection.

Owen is writing on the surgical treatment of tuberculous cervical glands and emphasizes the importance of early operation. The routine treatment of iodine and poultices he considers unsatisfactory. And the administration of sulphide of calcium has been in his hands the "veriest impostor of the Pharmacopœia." Even a visit to the seaside is considered as so much time wasted. Aspiration of a suppurating gland is characterized as a half-way practice. Once a gland has broken down, an operation becomes imperative. If the surgeon does not interfere, Nature performs the work, but at best slowly and imperfectly, and with much greater deformity than after the surgeon's knife.

When seen early the operation is a very simple affair, but unfortunately comparatively few consult the surgeon at this stage. The operation to be successful must deal radically with every affected gland and sinus. Due regard must be had for the various important structures of the neck. Of these the internal jugular vein causes the greatest anxiety, these growths at times being intimately connected with the wall of this vessel, which is frequently seen exposed at the bottom of the wound. Owing to the difficulties and dangers of these operations, it is advised to have a skilled anæsthetist and a familiar and trustworthy assistant. It is considered a mistake to attempt to work through too small an incision or to spare the scalpel at first, though subsequently the more blunt dissection the better. Diseased skin should be sacrificed, and when all is completed the cavity may be filled with powdered boric acid and covered with an antiseptic dressing. If the wound be a clean one primary union may be aimed at by the introduction of sutures. When the glands are broken down, however, and the curette has been employed freely, the wound should not be closed. Occasionally a second cleaning and scraping is necessary before complete healing occurs. The risk of general dissemination of tuberculous matter after such an operation is not great, but on the contrary, the patient has been rid of much of the danger of general tuberculosis.

Keen has recorded an interesting case with an operation of pyæmia and thrombosis of internal jugular vein from otitis media; trephining mastoid and opening lateral sinus unique in this country. The patient, a man, thirty-one years old, had had a chronic otorrhœa for eight years. Five months previous to consulting Dr. Berlet, who finally called Dr. Keen in consultation, the patient had consulted an alleged specialist, who had put something into his ear, which caused intense and prolonged suffering. From that time the patient gradually developed pyæmia. On November 16, 1890, the patient had a foetid discharge from the right ear, which showed a perforation in the membrana tympani. The mastoid was but slightly swollen; it was moderately painful upon pressure, with a little pain just above and behind it, but no pain over the course of the lateral sinus, between this point and the inion.

Over the mastoid process the neck was extremely tender, though but little swollen. The jugular vein could not be felt. The patient had difficulty in swallowing, and was somewhat hoarse. He was a little jaundiced, and the liver was rather tender. There was some dulness on the whole of the right side from light pleuritic effusion. No headache. Beginning choked discs. The mastoid was then trephined, and a considerable amount of cheesy matter was evacuated. The bone was then chiselled away backward and upward so as to expose the lateral sinus. The mastoid vein was cut early in the chiselling, but the profuse hæmorrhage was checked by plugging with iodoform gauze. In this way three-fourths of an inch of the sinus was exposed, which looked dirty yellow, with a tinge of brown and green. It felt soft to the probe, but was detached from the bone, so that a probe could be easily passed downward and forward for over an inch, thus evacuating a little offensive pus. Keen exposed the jugular vein in the neck. The tissues were found quite firmly bound to one another by inflammatory adhesions, but the vein was exposed after some difficulty, and found thickened, but almost entirely collapsed. A ligature was then thrown around it, an inch and one-half above the clavicle. On cutting the vein above the ligature very little blood oozed out, but fragments of an excessively foetid clot were evacuated from its interior. The facial vein, where it enters the jugular, was thrombosed. The part of the vein from the ligature up to the facial was then removed, and the gaping mouth of the vein above sewed to the skin by two stitches. Next the lateral sinus was opened. A violent gush of blood followed. It was instantly plugged with iodoform gauze before more than one ounce and a half had been lost. The wound in the neck was now closed in the ordinary manner, and drainage was maintained by horse-hair.

For the first twenty-four hours the patient did well. His temperature did not rise above 102°, and his general condition was good. He then had an attack of hæmoptysis. Some hours after he was seized suddenly with dyspnoea, "evidently due to the extension of the clot in the jugular vein into the lungs, or else to an embolus which was detached and passed into the pulmonary vessels." He then died in an hour without a post-mortem; it was unfortunate that full details could not be procured.

Seiss says that two operations are at the present time very fashionable in aural sclerosis: mobilization of the stapes, lately brought forward as new, but frequently performed, lectured upon, and reported by him more than six years ago under the name of drum-stretching, and considered on theoretical and anatomical grounds before by Kessel and Politzer, is perhaps the most valuable practical operation in the cases. But its effects last but a few months at most, and it cannot yet be decided whether, from its frequent repetition the patient receives permanent benefit or the reverse. Done with extreme care there is no inflammatory reaction, and but trifling risk; the operation consists in making a free incision in the posterior segment of the drum; a hoe-like instrument of great delicacy is then introduced through the cut, and cautious treatment made on the handle of the malleus, or the incudo-stapedial joint, or both, so "stretching" and possibly breaking up adhesions. In nearly all cases there is at least temporary improvement in hearing, and as is the case with almost every operation upon the ear (as upon epileptics) temporary "cure" of the tinnitus aurium.

The second fashionable operation recently brought into much prominence, but not new is excision of the drum-head with the malleus and (occasionally) the incus; the procedure is naturally a far grosser one than stretching, and exceedingly liable to be followed by reactive inflammation. This operation, possibly of great value in purulent attic diseases with necrosis of the ossicles, the writer cannot consider rational in cases of aural sclerosis, for the following reasons:

1. The operation always causes fresh migration of small cells, whose persistent tendency is to organization with subsequent contraction, equalling increase in deafness. 2. The method of its protective covering, the drum, and all aurists are aware that the results of a persistent perforation are cirrhosis and impairment of audition; the primary physiological purpose of the membrana tympani being protective, any permanent opening is harmful to the ultimate condition of the organ. As so ably shown by Richey, the tendency of the membrane to heal is an effort on the part of Nature to preserve the function of hearing from the effects of disease, or ill-advised surgical interference. 3. The manipulation is always painful, requiring general anæsthesia, and always has an element of danger actually resulting in not a few instances, viz., acute purulent otitis, with its perils to hearing.

It may be said that the operation of excision—of admitted value in some cases of necrosis—offers not a single advantage over that of the mobilization in aural sclerosis, but is, on the contrary, dangerous. Politzer's section of the posterior fold of the membrana tympani will often secure (and has done so in my hands) all the results in diminishing tension and tinnitus which have been reported as resulting from excision, and has the immense advantage of being safe and almost without proneness to set up acute changes. Yet its distinguished inventor does not claim that the results are permanent.

The technique upon which Seiss has most relied during the last few years for the control of distressing tinnitus after routine measures have failed, consists in freezing the mastoid region over the branches of the posterior auricular and stylo-mastoid arteries by means of a rhigolene or ether spray. The skin is frozen white over the entire mastoid area—of course with proper caution—at intervals of from one to six weeks, for an indefinite period; the results being almost invariably good, and "cure" of the tinnitus in a certain proportion of cases. The exact explanation of the result is somewhat doubtful; the well-known vasomotor effect of freezing methods are, however, well known, and it is doubtless by means of the nerve influence acting through the stylo-mastoid artery—which supplies the tympanum, mastoid cells, and semi-circular canals—that the method acts favorably. It is also well known that surface freezing lessens the conductibility of nerves, and profoundly affects nerve centres. The therapeutic management of purulent Eustachian salpingitis does not differ widely from that proper in cases of simple acute catarrhal inflammation, but the spray selected should be decidedly antiseptic, as well as sedative in character, and the drum and middle ear demand the most thorough attention and treatment. Inflation should not be used unless the lower portion of the tube can be first cleared, and injections of fluids into the tympanum through the Eustachian passages have been found to be rarely valuable.

Tonics are always called for, and complication will need special attention. Thorough treatment of the nasolarynx, antiseptic irrigation through the external canal, and the proper use of boric-acid powders, will cure all cases where neither a profound cachexia nor dead bone exists, the latter being causative of the luxuriant growth of granulation tissue so troublesome in many cases of this type.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

1. What are the therapeutic uses of cocain other than its use for local anesthesia?
2. Describe the treatment of simple anemia.
3. Mention the official preparations of ergot of rye and state the dose of each preparation.
4. Define and illustrate serum therapy.
5. State the symptoms of Addison's disease.
6. What parts of colchicum are used in medicine? Which part is the more active? Mention the alkaloid of colchicum.
7. What are the therapeutic uses of terebene? State the doses of terebene.
8. Give the sequelae of cerebrospinal meningitis.
9. Of what is spartein an alkaloid? Describe the physiologic action of spartein.
10. Mention the therapeutic uses of pix liquida.
11. Describe the etiology and treatment of pertussis.
12. Give the common name of *a*) corrosive mercuric chlorid, *b*) mild mercuric chlorid. State the dose of each.
13. Define pharmacopoeia. Mention the official pharmacopoeias published in the English language.
14. Define hydronephrosis. Give the etiology and treatment of hydronephrosis.
15. State the ratio of strength of the fluid extract of a drug to the crude drug.

To determine the presence of water in alcohol Professor Crismer recommends adding a trace of phenophthalein and some barium oxide. The presence of one-half per cent of water will cause a red coloration of the liquid in twenty-four hours; 1 per cent will cause it in a much shorter time.

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Nature is the incarnation of a thought and turns to a thought again as ice becomes water and gas.—Emerson.

IN HONOR OF DR. ROOSA.

A DINNER was given at Delmonico's on the evening of March first, in honor of Dr. D. B. St. John Roosa, founder and president of the Post Graduate School and Hospital of this city, and to commemorate the twenty-one years since the inauguration of post-graduate medical instruction in this country.

More than four hundred men prominent in the profession participated in the exercises, and Dr. Roosa might well have felt proud to be thus honored by so representative a body. The occasion was one that will not be soon forgotten.

A loving cup was presented to Dr. Roosa by Dr. Andrew H. Smith, in behalf of the faculty of the Post Graduate School and Hospital, amidst great enthusiasm.

The toasts offered represented the purposes of the occasion, and were confined chiefly to the subject of higher medical education.

Dr. William Osler presided in his usual happy manner, and among other good things said that it was an appropriate time to go over some of the things that had been done since the hospital was started, and suggest some of those that ought to be done. He included in the things that had been done, the organization of medical schools in universities, the awakening of the public to the need of higher medical education, the establishing of the American Medical Association, and the State and County Association upon a sound basis, and the license to practice medicine under control of the State.

He would make places in hospitals for third and fourth year students, and establish more schools for investigation. He prophesies, inferentially, great good to come from the Rockefeller Institute, and he also said that

"We need an interstate reciprocity which will obviate the necessity for one to take a special examination in each State in order to practise. This is an outrage, and we ought to set our faces against it. We should see that it is changed, and that we have reciprocity between boards having respectable qualifications.

"To-day we are facing the need of a merger in medicine. We should look forward to the consolidation of our teaching bodies. We waste much money in duplicating plants. There is not the shadow of a doubt that ten years from now in this city there will be only one large medical school, all teaching being in the central body, and all practical work being done in hospitals under a central organization. We should frown on the system of numerous medical schools, especially in the smaller cities.

"These are the duties we have before us. Some we shall see accomplished. Our profession to-day is not what it was twenty-five years ago; and what has been done is little compared with the things we hope to see done in the future."

Dr. Osler's remarks may be more significant than they appear from a casual reading, because it is well known that Columbia University has had for a long time something of this kind under consideration.

In this city there are probably in all the medical schools not far from five thousand students, and the opportunities for hospital practice, for the researches of the laboratory, and for the examination of unusual diseases are not surpassed by those found in any other city in the world.

Dr. Osler's opinion is that both upon the ground of economy and of the highest service at the least expenditure of energy or time, this concentration of the medical schools under one authority is especially desirable. Furthermore, that it would give to all students the opportunities which are now exceptional or reserved to some of the larger medical schools.

Dr. Keen, of Philadelphia, spoke on the need of increased endowment of medical institutions. He said:

"Only a few years ago quarantine was a bugbear. To-day we have no longer any fear of cholera, the plague or yellow fever, because the rat has been exterminated, the mosquito has been destroyed and we are boiling our drinking water. But a few years ago a single case of cholera down the bay meant millions lost to your merchants. To-day a case does not create a ripple of excitement, because the community knows your medical men have these diseases by the throat.

"Our work in Cuba has been epoch making, and the merchants from New Orleans to New York are reaping the benefits of this unselfish labor. To-day in India 100,000 persons a year are offered up on the altar of the plague, yet our work has diminished the susceptibility to that disease 77 per cent.; and we believe the day is coming when the plague, like yellow fever, will be wiped out.

"So it is with smallpox and typhoid fever. The backbone of sanitation to-day is in the medical profession. If you shut out the mosquito you shut out the malaria,

and when you dig the Panama Canal you will see in that a lesson which will be world convincing.

"At the present day we have changed the aspect with which we look at medicine. To-day it is a case of preventing sickness. I glory in it that ours is the only profession on the earth that is trying to destroy itself."

Dr. Roosa reviewed the history of the hospital he had founded, and said that its aim had been to give men opportunities to get in New York what hitherto they could only get abroad.

In conclusion he said:

"To men of great affairs in trade, commerce and politics the medical profession sometimes may seem inferior. We may perhaps be thought mere hewers of wood and drawers of water to the priests and Levites who minister at the great temples of the world, but not so. We can very properly compare ourselves to the engineers and stokers of a great man-of-war, or better, a great transport of passengers and freight.

"We are not seen, we are grimy and often wearied by the struggle, but it is we who keep down the epidemics, who prevent cholera from coming to our shores, who stamp out yellow fever, and who are planning that the day shall come foretold by the prophet 2,000 years ago, 'when no man shall say that I am sick,' but, like the One-Hoss Shay, shall finally, in the fruition of his days, pass into the other life by a general breaking up, no one part failing before the other, and so cease to exist."

Dr. Roosa closed his address by a graceful and touching allusion to the spirit that had actuated his friends in honoring him in so sumptuous a manner.

The medical profession and the country at large may well congratulate Dr. Roosa upon the work he has done in building up an institution which has no superior in the world, and the TIMES desires to add its encomiums.

MEDICAL EXAMINATIONS.

ONE should always discount complaints made against examiners by those seeking promotion, graduation or license, as it is always easy to excuse one's own ignorance, and to characterize the questions as unreasonable. A written examination is, by general consensus of opinion, the best test of proficiency for the greatest number. Yet it is unanimously regarded as impracticable for determining the highest efficiency in special work of any kind, as forecasting practical success, or even for determining fine distinctions of scholarship. Indeed, we wish that the element of competition for prizes and honors might be excluded from all institutions of learning, from the kindergarten to the college and professional school. Judging from personal experience, even if the sentiment of jealousy is excluded, the truest scholarship is incompatible with the spirit of rivalry. The man does not enjoy or appreciate nature who walks, runs or rides with the idea of going faster than others; true health and physical development is incompatible with the ambition to excel some one else rather than to exercise according to the needs and capabilities of his own muscles; likewise the student who is more interested in beating a rival than in acquiring knowledge for its own sake, can never become a real scholar.

It is our present purpose, however, to speak of such examinations as are held for medical graduates, by state licensing boards and by civil service commissions, etc., to determine fitness for appointive positions. In a general way these remarks apply also to the examinations for the three government medical services although the latter are avowedly for the purpose of securing picked men, and it is expected that about 90% of those who try the examination will be excluded.

While there is no need of more physicians—on the contrary—an examination which is intended by law merely to establish the fitness of a candidate for practice or for some position which requires only ordinary ability and preparation, should not too far exceed this standard, although it is only fair that the standard of the present should be made somewhat higher than that which obtained when the average practicing physician graduated. Any test which exhausts, puzzles or confuses the applicant, or any question which depends upon familiarity with some one's hobby, or upon the classification of any particular text book, should be excluded. With some exceptions, too, questions should be limited to topics upon which professional opinion is practically unanimous.

Perhaps our idea may be rendered clearer by criticizing some questions actually asked of candidates for state licensure. "What pathologic changes take place in the plasma of the blood?" Excepting coagulation and the deposition of uric acid crystals, this question is not susceptible of answer as the result of clinical methods of examination. To discuss the alterations in ferments, proteids, carbohydrates, salines, purin bodies, toxins of alimentary or infectious origin, etc., would require a long article, would necessitate the use either of glittering generalities or a citation of opposed authorities, and would be beyond the capabilities of the average clinician.

"Give the symptoms of iodism. How may iodism be prevented while the use of iodine is continued?" The first part of this question is unobjectionable. As to the latter part, we must confess our practical inability to solve the problem, except by giving iodine in comparatively inert form, hurrying its elimination or using some antidote which really interferes with its action. Of course there are ways of answering the question, but it is one of the kind that always confuses students and lead to questions as to just what the examiner wants in reply.

"What changes in the circulatory system may be due to abnormal increase in the heart's action?" There is

no such thing as a circulatory system, although there is a circulatory apparatus and a vascular system. Increase in the heart's action may mean increase of force, of frequency, or of both. The question does not correctly apply to functional changes in blood tension and pulse, but suggests an organic lesion. If the blood tension is increased, whether from the heart's action or from purely vasomotor conditions, rupture may occur if vascular disease pre-exists, but it is an unusual use of language to refer to such a condition in the words of the question. Embolism may also be thought of in this connection. So far as we are aware, however, any definite anatomic change implied by the use of the concrete noun, system, is not produced by increase of the heart's action, but is rather the cause of the latter.

"How do toxic conditions disturb cerebral function?" This question may be understood either as referring to symptomatology or to a physiological explanation of the action of toxins on the brain. When we reflect upon the great number of toxic conditions, and their wide differences in kind and in effect, we can readily appreciate that this question cannot be adequately discussed except at great length. Imagine an impartial examiner trying to mark fairly a number of candidates, some understanding the question in one sense, some in the other, and all rendering necessarily incomplete answers. Imagine, too, the injustice of marking according to the preconceived notions of any one individual, as to what the question meant and how much detail was expected.

A model examination paper for licensure or appointment to a practical position, should be practical in its scope. The questions should be numerous to cover the field widely, and to avoid a high or low mark because of accidental familiarity or unfamiliarity with one branch of a subject. The questions should be so worded as to require brief answers, partly because the object of an examination is not to test the endurance of the candidate nor his dexterity in the use of language, partly because brief answers are more readily marked, and more fairly comparable. For example, if we ask the dose of strychnine, the answer can be marked right or wrong, but if we ask for the action and uses of cardiac tonics, no answer can be considered perfect, in the sense of being complete, and, on the other hand, no one will have made an answer that can be considered wholly wrong, unless the preliminary qualifications have been an evasion of ordinary laws. To be sure, the latter question is a more general test of the applicant's knowledge, but three or four questions on the group of cardiac tonics will afford an equally rigid test, and will have saved the applicant and the examiner much fatigue, and will have compelled the man with a hazy view of facts, but a large command of language, to show just what he knows and what he does not know. One of the best medical teachers of our acquaintance used to say that it was better to mark strictly on an easy examination than to mark leniently on a difficult one. In the long run, about three-quarters of the applicants must be passed or the standard becomes unreasonably severe, and it requires no difficult or puzzling set of questions to sift out the incompetent.

To avoid the mistake of submitting unpractical questions, those that deal with subjects under dispute, those that emphasize unduly the hobby of an examiner or of some particular author, and those that are susceptible of more than one reasonable construction of meaning, we believe that all questions should be subjected to the revision of a committee of practical physicians, of good standing.

THE SEARCH FOR A POSITIVE TEST FOR HUMAN BLOOD.

THE popular conception of many branches of medicine places medical science far in advance of its real position. Admiration for medical achievements is now quite the fad, and the public is ever-ready to accept any improvement or discovery, even before its originator has a chance to work out its phases for himself. Hence it is in murder trials that the public learns from time to time that the medical profession has not had any really good means of determining the source and character of blood. Of course, in a general way, this distinction can be done, but the fine, clear-cut, definite test has been lacking.

Nowadays, with the question of toxins and antitoxins filling space, the time has arrived, apparently, for an excellent positive test for human blood, not by the microscope, but the biologic plan. This test has been examined, built upon and tried by probably fifty observers in the past two years, and seems to be holding its ground famously. The production of artificial immunity is a most fascinating subject; this phase of it is novel, yet logical. We all know that the injection of foreign elements into an animal brings about the production of substances antagonistic to those injected; these phenomena we now realize underlie the struggle for existence everywhere in nature. Later experiments have demontrated that if cells or fluids from an animal are injected into an animal of different species, the blood of the latter will in time contain substances which will be antagonistic to the cells or fluids injected. Here is the basis on which the biologic test is built. The list of experimenters and experiments have grown too long to enumerate here, but in recent issues of the *New York Medical Journal* Robin has presented this subject clearly and briefly. To Nuttall and Dinkelspiel much credit is particularly due, for they, apparently, were the first to inject intraperitoneally into rabbits, a blood serum from a horse, dog, sheep, ox and man. The resulting serum was found to react in every instance with the homologous blood. Their experiments were exhaustive, and they reach the conclusion that the haemo precipitins are

specific. These experiments cover thoroughly five hundred kinds of blood, and the serum of rabbits treated with dog serum gave a specific reaction only with dog's blood; the same phenomena was noticed with the blood of the sheep, the ox, the horse, etc. Dried blood and blood kept under different conditions acted just as well. Their conclusions are as follows:

"1. The investigations we have made confirm and extend the observations of others with regard to the formation of specific precipitins in the blood serum of animals treated with various sera. 2. These precipitins are specific, although they may produce a slight reaction with the sera of allied animals. 3. The substances in serum which bring about the formation of a precipitin, as also the precipitin itself, are remarkably stable bodies. 4. The new test can be successfully applied to a blood which has been mixed with that of several other animals. 5. We have in this test the most delicate means hitherto discovered of detecting and differentiating bloods, and consequently we may hope that it will be put to forensic use."

The only cloud on the sky of this research was the fact that the blood of allied animals might produce a slight reaction. In human blood it was found that it reacted with the antiserum of the gorilla, orang, chimpanzee and monkey. To avoid this complication Layton suggested the dilution of blood five hundred times; then human blood can be detected from that of the monkey.

This test at once attracted attention in medico-legal circles as specific and invariable, and already in a few murder trials it has been tried. Robin tried it in the Collins murder in Delaware, and it was used at the Bechtel trial at Allentown. Robin was given various articles stained with blood without knowledge of their antecedents. He was able to pick out the various kinds of blood found on a farm, and helped to substantiate the theory of the state as to the murder, but he was unwilling to swear to the absolute fidelity of the test, as it was his first experience with it.

The courts are willing as a rule to accept this serum test as superior to the old method of measuring corpuscles, and the lawyers are anxious to have it fully established. It looks at this writing, as if the method were a very distinct advance in medical jurisprudence.

DR. ROBERT FULTON WEIR.

The Faculty of the College of Physicians and Surgeons—medical department of Columbia University—has paid a graceful and proper tribute to the long and valuable services of Dr. Robert Fulton Weir, for many years Professor of Surgery, on his retirement from active teaching in the college, by the adoption of suitable resolutions, which have been entered upon the minutes of the Faculty.

DIETETICS AS ORDAINED BY MOSAIC DISPENSATION.

THE tendency of the day to introduce common sense into every detail of religion and medicine has shed a new light on the Mosaic dispensation in reference to the food of the chosen people. Already many things in the Biblical writings have been explained on the basis of modern science to the satisfaction of everyone. For example, Schamberg recently endeavored to prove that the so-called leprosy of the Jews was really a mixture of skin diseases, and he makes out a very strong argument in the matter. Again, it is now known that epilepsy was known as a distinct disease to the ancients, and the phrase, "he was possessed of a devil" was rather the invention of Middle Age ignorance, for the term so translated in King James' translation of the Bible was used in describing the epileptic fit. Certainly the term used in the King James version was a picturesque conception, but it has been attacked by modern sceptics who did not know that Luke was undoubtedly possessed of a medical education, and used the proper scientific terms of the day in describing what he saw of the miracles.

Much fun has been poked at the Hebraic custom of avoiding certain meats and the enforcement of certain methods of killing such animals as are eaten. This fun comes from the ignorant and unthinking, for the commands of the ancient Hebrew prophet make first-class, up-to-date hygienic principles. Aronstam, in the *Medical Age*, for February 25, 1904, gives a clear-cut description of these commands. We know something of the Hebrew word "Kosher," but scarcely anyone realizes that it denotes any foodstuff which is conducive of proper nourishment without giving rise to any disturbances after being ingested, while "treife," on the other hand, signifies anything which is not only unable to sustain the wants of the organism, but is also instrumental in the creation of toxic symptoms. The Jewish supervision begins with the slaughter and meat inspection. The Jewish butcher kills by severing the pneumo-gastric nerve, the carotid artery and the jugular vein, producing death instantaneously. Blood does not collect in the tissues, and hence the animal is less apt to undergo decomposition. Again, the inspection of the animal is rigid; the "shochet" rigidly scrutinize the lungs of every slaughtered animal for traces of consumption; he inspects the heart and digestive organs for vestiges of disease, and stamp all diseased cattle "treife." Here is a meat inspector who has the backing of a religion, and the sanction of a divine command.

The interdiction to animals rests on mammalia, the avenine order or birds, piscines, crustacea, as well as mollusca, insecta and reptilia. Among mammals, for example, the use of the camel as food is interdicted; modern science has shown that its flesh is one of the most indigestible of animal tissues. It undergoes decomposition quickly, and is a very favorable soil for the

growth of various saprophytic forms and numberless other bacteria. To a Caucasian mind, it is scarcely necessary to speak of the undesirability of eating rats, mice and other rodents. We know now, however, in addition, that they are peculiarly liable to disease, and are generally bacterially infected. The Jewish interdiction extends also to the mole, the weasel, the lizard, the hedge hog and the swine. Here is the point of splitting between Jew and Gentile. Yet we know the diseases to which the pig is exposed. Leidy, when a young medical student, saw a suspicious spot on a ham sandwich, and stuck the meat in his pocket for further investigation, to give to the world subsequently the new disease, "trichinosis." Taenia solium and other taenia rest in its well-filled abdomen, and hog cholera is another visitor in the stye at times.

Less well known are the Biblical commands against the consumption of all aquatic animals not the possessors of fins and scales. Fishes with squamous tunics and fins are higher up in the animal kingdom, and more suitable as articles of diet. The oyster, even, is peculiarly apt to carry disease, especially typhoid fever, while the eel, a so-called creeping fish, is not a nutritious food at all. Carnivorous birds are tabooed because of their indigestibility; such as the eagle, the hawk, the vulture, the stork, the swan, the owl and the raven. The inhabitants of the Torrid Zone know the unwholesome character of the flesh of the ostrich, which will eat anything from a lump of anthracite to a jelliferous insect.

Again, insects and reptiles are barred by Moses, our first great sanitarian. They form the lowest types of animal life, and are eaten only by the lowest class of savages. Four forms of locusts are exempt, but their nomenclature is so involved that we do not know what kind of locusts are meant. The snail, the tortoise, the crab and the mussel are included in this boycotted class.

In the lower forms of animals there are found many micro-organisms, for these types have a weak resisting power, and are endowed with a low vitality. These animal organisms decompose with great facility, and hence they are less fit for the sustenance of the human body, not only in energy-giving power, but also because they are so prone to create constitutional disturbances. The prehistoric animals were all originally carnivorous; as they ascended the scale of progression they acquired a tendency to subsist on a vegetable diet. We know that the fiber of animals fed on a strictly nitrogenous diet is extremely tenacious, requiring much heat to render it pliant and masticable, while herbivorous animals possess delicate muscular fibers, demanding less thermic and gastronomic efforts at preparation. Undoubtedly complexity is a tendency towards progression, so that the human stomach is the most complex of the entire animal kingdom. Man is an omnivorous creature, requiring a combination of both types of food. Hence milk is of such importance in the human economy, for it is a very complex substance, containing albumin in its most digestible form, a form of sugar, fats, salts, etc. Hence, it is that the simple and possibly inexplicable laws of Moses have been justified and fortified by the researches of modern science, some thousands of years after their promulgation. It is curious to note that the one people who have followed this code of living strictly are to-day a compact, distinct body, although politically scattered over the entire globe.

THE MEDICAL CONSCIENCE.

AN old gentleman was one evening taken with uraemic convulsions. A fledgling practitioner living nearby responded at once to the hurry call that was sent out. As soon as he had got the convulsions under control he had the family physician sent for. There then presently came an elderly man, tall, powerfully built, with rough-combed, iron-grey hair, massive features and cavernous orbits—altogether a forceful man. After the consultation the fledgling, at the elder's request, remained with the patient during the night to guard against possible untoward developments. The next evening the fledgling came to the elder's office, and explained all that he had done the night before. "I did this, that and the other," said he, "but I have been worried to think that it might have been better for the patient if I had done so-and-so." While speaking to this effect, the elder regarded him from under his shaggy eyebrows, and presently interrupted him with: "Doctor, are you a New Englander?" "No," said the fledgling, "why do you ask?" "Because you seem to be troubled with a conscience."

The medical conscience is indeed no agreeable companion, especially if its host suffers from insomnia. For in the stilly night recollections will not down, such as: that of the careless diagnosis of tonsilitis in the case of one of Mrs. X.'s children, followed by the development of diphtheria in that family, with graveyard results; or that, if ether had been given instead of chloroform in the case of Mrs. Y., who had a bad heart, she might not have died on the operating table; or that if the forceps had not been applied too hastily in the case of Mrs. Z., she might not for the rest of her life be having to endure an irreparable tear of the sphincter.

And, indeed, it is a hard thing to keep within normal limits, this medical conscience, medicine being an art so intangible and so ever-changing. The text-books written several years ago are quite useless for present day practice. But yesterday it were malpractice not to prescribe creosote for the consumptive; to-day it is abhorred as a drug most nauseating, and really deleterious in its effects. Concerning even so simple a thing as the management of a boil, there is no unanimity; for some use salicylic ointment, others carbolic acid, others the lancet, others colloidal silver, and others calcium sul-

phide, each condemning the methods that are not his own.

Yet the practitioner cannot do without this medical conscience; of course, most medical men have it. It were well worth the fledgling's while to cultivate it uncompromisingly. It will at any rate prevent his ever taking a life, even though that life have but recently been conceived. It will keep him always clear-minded and temperate bodied, so that he may invariably be prepared for the direst emergencies. It will keep him always ready to give to the patient the best that he has in him, both of the science and art of medicine. It were best indeed to maintain this conscience, if for no other reason than that in the eventide of life (if the exactions and heart-strainings of practice have not prematurely cut him off) the face of the conscience-abiding physician will express the mellowness, and the strength, and the sub-conscious morality inherent in his character. For it is well known that in the lines of an old man's countenance, the whole of his life is easily to be read.

PROFESSIONAL EATERS.

SUPERVISOR WRIGHT, of the Indian Service, gives the following account of a peculiar practice found among the tribes on the Devil's Lake Reservation in North Dakota. From time immemorial the Devil's Lake Sioux have adhered to an old custom in regard to the treatment of a guest. According to their etiquette, it is the bounden duty of the host to supply his guest with all the food he may desire, and as a rule the apportionment set before the visiting Indian is much in excess of the capacity of a single man. But by the same custom, the guest is obliged to eat all that is placed before him, else he grossly insults his entertainer. It was found that this practice would work a hardship, but instead of dispensing with the custom, the Indian method of reasoning was applied, and what is known as the professional eater was brought to the front. While the guest is supposed to eat all that is placed before him it serves the same purpose if his neighbor assists in devouring the plentiful repast, the main object being to have the plate clean when the meal is finished. It is not always practicable to depend upon a neighbor at table to assist in getting away with a large dinner, and in order to insure the final consumption of the allotted portion, visiting Indians call upon these professional eaters, whose duty it is to sit beside them through a meal, and eat what the guest leaves. The professional eaters are never looked upon in the light of guests, but more as traveling companions with a particular duty to perform. These eaters receive from one dollar to two dollars, and even three dollars, for each meal where they assist. It is stated by the agent at the Devil's Lake Reservation that one of the professional eaters has been known to dispose of seventeen pounds of beef at a sitting. That they are capable of eating an almost fabulous amount I myself can testify.

BIBLIOGRAPHICAL

Obstetrics for Nurses.—By Joseph B. DeLee, M.D., Professor of Obstetrics in the Northwestern University Medical School, Chicago; Lecturer in the Nurses' Training Schools of Mercy, Wesley, Provident, Cook County and Chicago Lying-in Hospitals. 12mo, of 460 pages, fully illustrated. Philadelphia, New York, London. W. B. Saunders & Company, 1904. Cloth, $2.50 net.

Although this work was written, as the author states, primarily for nurses, yet from examination we believe that medical students will find in it much of value, since the duties of a nurse often devolve upon him in the early years of his obstetric practice. There are really two subjects considered—obstetrics for nurses and the actual obstetric nursing—and Dr. DeLee has combined them so that the relations of one to the other are natural and mutually helpful, presenting this important branch of medicine in a clear and interesting form. The illustrations have not been borrowed from other works, but are original. The photographs were taken by the author from actual scenes, and are true to life in every respect. The text is the outgrowth of eight years' experience in lecturing to the nurses of five different training schools.

The Practical Medicine Series of Year Books.—Comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly. Gustavus P. Head, M.D., General Editor.

Vol. II. General Surgery, edited by John B. Murphy, M. D., Professor of Surgery, Northwestern University Medical School. November, 1903. Chicago. The Year Book Publishers.

The announcement of the editor's name ought to be sufficient endorsement of the value of this book. We have frequently stated that this series of Year Books is perfectly sufficient for most purposes, and the expense is within the reach of all, viz.: $5.50 for the ten volumes, and it is published primarily for the general practitioner.

Infant-Feeding in Its Relation to Health and Disease.—A Modern Book on all Methods of Feeding. By Louis Fischer, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals, of New York City; Attending Physician to the Children's Service of the New York German Poliklinik; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. Third edition, thoroughly revised and largely re-written. Containing 54 illustrations, with 24 Charts and Tables, mostly original. 357 pages, octavo. Extra cloth. Price, $2.00 net. F. A. Davis Company, Publisher, Philadelphia, Pa.

This book, intended for students, nurses and practitioners, has been mostly re-written to accord with the progress of the times, and much new matter added. It will be found of great service in the practical part of a most important subject, and is sufficiently exhaustive for its purpose. The book has become justly popular, and should be commended.

The Man Who Pleases and the Woman Who Charms.—By John A. Cone. Hinds & Noble, New York. Price, 75 cents.

The physician will find this little volume of service in his daily life, because it will show him how to please, and this always leads to success.

Subjective Sensations of Sight and Sound, Abiotrophy, and Other Lectures.—By Sir William R. Gowers, M.D., F.R.C.P., F.R.S., Hon. Fellow R. Coll. Phys., Ireland; member of the Soc. Medicins Russes of St. Petersburg, and of the Royal Soc. of Science of Upsala, etc. Philadelphia. P. Blakiston's Son & Co., 1904. 12mo, pp. 250.

These well-known lectures have been carefully revised, and in part re-written by the author to accord with later experience. The text is classically written by a masterhand, whose work on diseases of the nervous system has long since become standard. In order to keep abreast of the times, the student in this department of medicine must have the book.

Eighteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania, 1902.—Benjamin Lee, M.D., Secretary.

This is an interesting and instructive book for reference.

Howe's Handbook of Parliamentary Usage.—Hinds & Noble, New York. Price, 50 cents.

The unique feature of this new handbook is an ingenious visual arrangement of the whole subject-matter of practical parliamentary law in such order that when the book is opened in the middle, the chairman, the speaker, the member who next has the floor, or any one else, has *before his eyes* a complete summary of *every rule* needed in the conduct of any business meeting.

Medical Union Number Six.—By William Harvey King. 16mo. 60 pages. Price boards, 35 cents; paper, 15 cents. The Monograph Press, 25 West Broadway, New York.

The author takes for a theme the growing arrogance and unbridled excesses of labor unions. He casts a long look ahead, and, in the form of fiction, describes in biting satire a condition of things that might be the logical outcome of unrestrained labor unionism carried to the extreme toward which its dominant impulse of to-day is directing it. The book is at once a protest and a warning.

Book on the Physician Himself and Things that Concern His Reputation and Success.—By D. W. Cathell, M. D. The twentieth century edition revised and enlarged by the author and his son, William T. Cathell, A.M., M.D. Baltimore, Md. Philadelphia. F. A. Davis Co., 1903. 411 royal octavo pages. Price, $2.50.

The present is the eleventh revision of this notable book, of which nearly 50,000 copies are in circulation. The author may justly take pride in such a remarkable showing. It is a book that every physician should possess for reference upon many subjects, as it will help to keep him on the right track. It should be read without fail by the recent graduate before he enters practice.

A special feature of this edition is the introduction of apt quotations, which make it more readable. It should be borne in mind, that this is a new book, written in the author's most happy vein, in which his views upon broad and far-reaching subjects have been carried to their logical conclusions, thus affording a literary treat as well as a storehouse of ethical suggestions of the greatest value to every medical practitioner. The author has most graciously associated with him his son, Dr. W. T. Cathell, in the preparation of this crowning event of his estimable life-work.

A Practical Treatise on Nervous Diseases for the Medical Student and General Practitioner.—By F. Savary Pearce, M.D., Professor of Nervous and Mental Diseases, in the Medico-Chirurgical College of Philadelphia; Fellow of the College of Physicians of Philadelphia, and Neurologist to the Philadelphia and Howard Hospitals, etc., etc. Colored frontispiece. Ninety-one illustrations in text, many in colors. New York and London. D. Appleton & Company, 1904. pp. 401, octavo.

The author has attempted to fill a distinct niche in the literature of practical neurology. His presentation of the subject is concise and lucid, just what is required for the purpose. Special attention has been given to the working side of the subject, as the ætiology and treatment are generally the least understood. The volume is illustrated with over fifty original photographs and cuts, presenting to the eye as a method of teaching, what can not always be well explained in the text. Our readers will find the work just what they want for a text-book.

Atlas and Epitome of Operative Gynecology.—By Dr. O. Schaffer, of Heidelberg. Edited, with additions, by J. Clarence Webster, M.D. (Edin.), F.R.C.P.E., Professor of Obstetrics and Gynecology in Rush Medical College, in affiliation with the University of Chicago. With 42 lithographic plates in colors, many text cuts, a number in colors, and 138 pages of text. Philadelphia, New York, London. W. B. Saunders & Company, 1904. Cloth, $3.00 net.

This new addition to Saunders' admirable series of Hand-Atlases, like the others, is excellent. It is unfortunate that recent graduates know less about gynecologic operations than about almost any other department of operative surgery. This atlas, therefore, is opportune, and the excellence of the lithographic plates and the many other illustrations render it of the greatest service in obtaining a sound and practical knowledge of operative gynecology. Indeed, the artist, the author, and the lithographer have evidently expended much patient endeavor in the preparation of the water-colors and drawings. They are based on hundreds of photographs taken from nature, and reproduce faithfully and instructively the various situations which they intend to illustrate. The text closely follows the illustrations, and will be found fully as accurate. The general practitioner and the surgeon as well as the specialist will find it of great value.

Baudry (*Nord. Med.*, Jan. 15, 1903), made a special study of the endemic eye affections for which Egypt is notorious. The ocular lesions there are the same as elsewhere, and there is no special morbid entity peculiar to the country. The famous Egyptian ophthalmia is merely trachoma complicated by a catarrhal or purulent condition of the conjunctivae, and does not differ from such conditions elsewhere. The climatic and hygienic conditions of the country explain the prevalence of eye affections and the frequency of contagion.

Palmer ("Br. Med. Jour.") vaccinated twelve infants whose mothers had been successfully vaccinated during pregnancy. These infants all seemed immune to vaccine since no typical lesion was produced, while the same vaccine was used successfully on three hundred other children. The observation had also been made by Fulton and Crowe.

RETROSPECTIVE THERAPEUTICS

Treatment of Hay Fever.—Sir Felix Semon, in the *British Medical Journal* for March 28, 1903, presents an article dealing with the results obtained by Prof. W. B. Dunbar, Director of the State Institute for Hygiene for Hamburg. It will be remembered that this gentleman succeeded in isolating from the pollen of certain grasses a tonic substance which seemed to bear a very direct relation to the cause of hay fever. The author conducted a series of experiments in the course of which he isolated the toxins and produced anti-toxins from thoroughbred horses, and used them upon himself and eight other people. He draws the following conclusions: First, that there can be no doubt that Professor Dunbar has succeeded in isolating a toxin which, when introduced into the eyes or nostrils of people predisposed to hay fever, produces the well-known symptoms of the disease. In people not predisposed, the result is negative. In persons already suffering from hay fever, the effects of the toxin are as variable in intensity as are the attacks of the affection itself, both locally and constitutionally. Prof. Dunbar's antitoxin certainly produced immediate disappearance of the subjective and after a few minutes, great amelioration of the objective symptoms. The mixture in equal parts of a toxic solution (1 in 500) and the antitoxic serum suffices to neutralize the specific effects of the toxin. The effects of the antitoxin appear in some instances to be sufficient to prevent a reappearance of the subjective symptoms. In other instances, repeated instillations of it are necessary to reproduce normal conditions. At the present moment we are only on the threshold of an accurate knowledge of this condition, and while we do not emphatically state that we are shortly to be able to give absolute relief to sufferers, it is conservative to say that sufficient work has been done to justify broad statements in that direction.

A. W. McCoy (*N. Y. Med. Jour.*, Nov. 21, 1903), reports, in full, six cases of the use of Dunbar's antitoxic serum in hay fever during the season of 1903, and refers to nine other cases which he saw in his practice. To the conjunctival mucous membrane one or two drops were instilled from two to four times a day. From two to four drops were also dropped in each nostril from two to six times a day. The result in such cases was complete recovery.

Lecithin.—Henri Labbé (*Rev. de Thérap.*, Nov. 1, 1903) writes of the therapeutic uses of lecithin extracted from the brain, or from eggs. He gives the physiological properties of the substance, its action on growth or metabolism, weight, appetite, urinary chemism, osteogenesis and hemotapoietic processes, nerve elements and blood. In rachitis it has given excellent results, when taken in the place of phosphates. It can also be substituted for phosphates in phosphaturia. In neurasthenia and anemia it is of great value, increasing the appetite, restoring physical strength, and causing an improvement of the general condition. Lancereaux and Paulesco have found it beneficial in diabetes, altho it has no specific action on the production of sugar. In cachexias and in convalescence it has a field in restoring strength. In children it does not seem to produce especially good effects, except in lymphatism, while in the aged it is very useful in overcoming adynamia, improving the general condition, and strengthening the intellectual powers. In some cases it acts on the heart when digitalis produces no effect, and it increases the flow of urine. It should be tried in tuberculosis, for Claude and A. Zaky report that it causes marked general improvement.

Fuerst (*Therap. Monatsh.*, XVI., No. 8) has witnessed most remarkable success from the administration of two lecithin pills three times a day in cases in which the brain was fatigued or exhausted from any cause. He thinks that we have in lecithin a most valuable agent for toning up the brain when suffering from overuse. It supplies the phosphorus in an active, organic form, and the entire metabolism soon shows the benefit derived. In six to eight weeks the brain becomes much clearer and more active. The favorable results of ingestion of eggs, milk, brain substance, spermin and cerebrin, are undoubtedly due to the large proportion of lecithin they contain.

Natrum Salicylicum in Exophthalmic Goiter.—The benefit derived from the administration of salicylate of soda in the treatment of Basedow's malady is being continually corroborated by practitioners in France. M. Chibiel, who recommended this treatment, reported lately four cases very amenable to the drug. He prescribed one drachm daily in vichy water. The improvement was very rapid. M. Babinsky communicated to the Société de Neurologie at Paris three cases, of which two were accompanied with intense tachycardia, 120 to 140 pulsations. After a few months of the salicylate treatment, the pulsations fell to eighty, and the trembling disappeared. In the third case, where the only symptom was goiter, the gland entirely disappeared at the end of three months. No other treatment was employed in any of these cases.

Hot Water Injection of Vascular Tumors.—Dr. John Wyeth, in the *Journal of the American Medical Association*, June 27, 1903, (*Med. Council*), cites some interesting cases of vascular tumors cured by the injection of very hot water. These growths were inoperable, and had existed for years. The method consists in throwing almost boiling hot water into the substance of the growth, thus coagulating the blood, clogging the vessels, and causing ultimate absorption of the needless parts. Experience has shown it to be advisable to exert sufficient compression about the periphery of the area operated upon to prevent the flowing of blood from it, thus guarding against carrying away of the clotted blood, which might cause serious embolism. From 5 to 15 minims are injected in one spot. The location of the needle point is changed "here and there," according to the size of the mass. If the hot water is injected under the growth, its parent, or supply, vessels, and their contents, are coagulated, thus causing gradual denutrition (granular metamorphosis). The operation may be repeated.

Sufficient water is injected to distend the growth, and must be temporarily, if not altogether, stopped when the surface becomes almost unbearably hot. The operation is done under ether narcosis. There is no pain on recovering consciousness.

He mentions the method of Dr. Lucien Lofton, of Virginia, who injects hemorrhoidal tumors with hot water. This is cautioned against by Dr. Wyeth for fear of hepatic or other emboli, though he considers it the safest of all injection treatments. We desire to add,

in opposition to this fear, however, that if compression of the vessels around the periphery of the tumor, for a brief time, elsewhere will prevent emboli, it ought to be equally efficient in hemorrhoids.

He also mentions that the late Dr. Ackard, of Springtown, Texas, successfully treated fistulæ by injections of boiling water.

Dr. Wyeth deems it useless to have any special device for recording surface temperature during the treatment, because the operator may judge of the degree of heat and tension by the touch of his hand and the blanching of the skin.

Obliteration of Wrinkles by the Use of "ZO" Adhesive Plaster.—According to Dr. Robert T. Morris, the simplest and easiest remedy for obliterating wrinkles is perhaps found in the "ZO" adhesive plaster. It not only does not injure the skin in any way, but improves its texture. In removing the wrinkles, it also clears and beautifies the complexion.

Of course, the underlying principle in the procedure is to keep the skin tense for the longest possible time. This is best accomplished by applying the plaster just before retiring, and permitting it to remain until the following morning. Before applying the plaster the wrinkled skin should be drawn tense with the first and second fingers of the left hand, while the plaster, in narrow strips, is applied over the surface and parallel with the wrinkle. It is immaterial whether a wide or narrow strip is used, but as wrinkles usually make their appearance at the angles of the eyes, between the eyes, etc., a narrow strip must be used. Unless the wrinkle to be obliterated is a very deep one, it is never necessary to apply more than one layer of the plaster at a time.

Acute Tonsillitis: Its Treatment by the Local Application of Tincture of Iodine.—I wish to impress upon my readers, says Samuel Floresheim, in *Medical Council*, for November, 1903, that we have in this simple and widely known remedy an exceedingly powerful and helpful therapeutic agent which can positively be relied upon when other remedies have failed to act.

I do not now wait for the ordinary remedies to act, but apply the tincture of iodine at once to the inflamed area whenever it is indicated.

So much reliance do I place on this remedy that very often I do absolutely nothing else but locally apply it. At first I was surprised to hear from patients of its powerful and rapid action; now I should be surprised to hear from patients that it did not act well.

The disease is one that demands prompt interference on the part of the medical attendant, and the method of treatment which gives the most rapid relief should be employed.

The method of application is simply to saturate a camel's hair throat brush with the drug, depressing the tongue with a spoon or other contrivance, and rapidly and thoroughly paint the remedy over the inflamed area.

Should the patient complain, after two minutes, of an intense burning in the throat, a simple gargle, once or twice, of warm water, will give relief. Care should be taken that gargling be not done too often, as some burning is essential to obtain the desired result. If the burning is only moderate, a gargle is not advised. Should the patient experience no burning within five minutes after the application, it must be repeated.

When marked improvement follows the application in twenty-four hours, the application is not renewed. If very little or no improvement is observed, a second thorough application of the remedy is advised. A third application has never been required.

The most stubborn cases of simple, acute or follicular tonsillitis will always yield to this treatment. Other medication may be employed, at the discretion of the medical attendant, but is seldom necessary. The diet should be simple and nourishing, as is usually directed. Constipation should be overcome. A good movement of the bowels with a saline, though the patient states they are regular, often helps considerably toward a more rapid convalescence in acute tonsillitis.

Closure of Wounds.—Dr. Miles F. Porter (*St. Louis Clinique*) protests against the use of sutures in the skin or subcutaneous tissues, and advises the use of adhesive plaster instead. The plaster is applied in strips about one-fourth inch wide after the skin has been carefully dried; no more strips are used than are necessary to maintain perfect coaptation. In cases where considerable tissue has been removed, as in operations for mammary carcinoma and in very fat subjects where the thickness of the wall may cause dead spaces to exist, the writer uses a few tension sutures in connection with the adhesive strips. The adhesive plaster is kept sterile in an air-tight jar in the presence of formalin. Except in intestinal work, the author uses no non-absorbable sutures with a view of allowing them to remain permanently. In conclusion he says:

1. The use of sutures should be avoided save where necessity demands it. Many wounds in which sutures are now commonly used may be coapted more perfectly, more speedily, and more safely without the use of sutures.

2. Tension and moisture are the only conditions making sutures necessary.

3. When sutures are necessary, buried absorbable sutures should be used in all cases where there is no infection.

4. The necessity for drainage does not contraindicate the use of adhesive plaster for purposes of coaptation.

5. It is doubtful if non-absorbable suture material should ever be used with a view to its remaining permanently.

6. Non-absorbable sutures are not necessary or advisable save in intestinal work and in the presence of sepsis.

7. In those cases in which non-absorbable sutures are necessary that method of applying them should be chosen which will subject the tissues to the least possible trauma, produce the fewest possible avenues for infection through the skin, and permit of their being removed when they have fulfilled their mission.

Bunions.—These painful enlargements, according to the *Phila. Med. Times*, are amenable to treatment by applying static sparks and galvanic applications with cocaine. If simply painful, a fine static spark drawn through the shoe will suffice. In making the static application, a point in the centre of the bunion will be found to be anesthetic. Concentrate the sparks at this point until the patient feels the current. This may be repeated once or twice daily. The anodal spark has been used, as a rule, but it seems to be the rapid vibrations that are beneficial, consequently either electrode may be applied with rapid vibration.

Characteristics of Ocular Headaches.—(1) Forty per cent. of all chronic headaches and eighty per cent. of all frontal headaches are partially or wholly of ocular origin.

(2) Their site, in order of frequency, is (*a*) supra-orbital, (*b*) deep orbital, (*c*) fronto-occipital, (*d*) temporal, or (*e*) a combination of these.

(3) Near work is their chief exciting cause; reading, writing, drawing, painting, fancy work, typesetting, typewriting, sewing, music, etc.

(4) Patients suffering from headache often observe that other eye-symptoms (6 and 8) also result from the use of their eyes for near work, especially with artificial illumination.

(5) Shopping, theatre and church going, as well as riding in street cars and railway trains, often induce it.

(6) The letters and lines in reading and the notes in music blur, run together and get mixed up.

(7) The patient with ocular headache is general astigmatic or farsighted, or has some other refractive error, or has some weakness of his ocular muscles.

(8) Patients with ocular headache often complain of lachrymation, photophobia, foreign body sensations, specks floating before the eyes, itching and burning of lids, redness of eyes, etc.

(9) The signs of eyestrain above mentioned may be present and the headache of ocular origin, although the vision is normal and there is no manifest astigmatism. The patient in such a case overcomes his hypermetropia, or astigmatism, or both, by continuous muscular effort.

(10) About ten per cent. of all ocular headaches are incurable and some of these are hereditary.

Wattenlaufen—A New Therapeutic Sport.—During the last few years a seacoast resort in Northwest Germany has inaugurated a sport which is commended by Stelzner for its therapeutic value (*D. Med. Woch., J. A. M. A.*). With legs bare to the knee, the people young and old, men and women, flock to the shore as the tide goes out and promenade on the wet sand, left bare by the receding tide. Many elderly persons come to this resort from a distance to take advantage of this sport as a therapeutic measure, saying that it insures them a healthy winter. It is not practiced as a fad, but in all seriousness, and the return of the tide prevents excess. Stelzner reviews the indications and contraindications for this beach strolling, and states that its best effects are obtained in nervous affections, insomnia, etc., far surpassing those resulting from sea bathing.

Sunshine and Fresh Air vs. the Finsen Ultra-Violet Rays and Roentgen Rays in Tuberculosis of Joints and Bones.—De Forest Willard (*Jour. Amer. Med. Assoc.*, July 18, 1903) says the opportunities for noting the effects of the above rays on the deeper tissues of tubercular joints have not been as yet sufficient. His conclusions are: (1) Sunlight, fresh air, good food with fixation and protection of the joint are most important. (2) Direct exposure to the sun's rays is essential. (3) Patients in bed should have diseased joints exposed to direct rays of the sun. The joints may be covered with blue to secure passage of ultra-violet rays. (4) Tent life on hospital grounds can be successfully employed summer and winter. (5) Sanatoria should be established for tuberculosis of the hard tissues. (6) The concentration of the sun's rays is positively beneficial; but as final curative agents, the direct sun's rays are best. (7) The Roentgen rays in the laboratory have inhibitory power on tubercle bacilli and may be useful in living tissues. (8) The actinic and X-rays are helpful, but several years will be required to determine their effects. They should be employed to supplement the usual procedures.

Petroleum in Sea-Sickness.—An Australian correspondent of the *Homeopathic World* makes mention of petroleum as a safe and reliable remedy for the prevention of sea-sickness, and one which he can back up by personal experience. "A few years ago," he writes, "I had occasion to take a trip from Sydney to the Hawkesbury River in the steamer Newcastle. As I had never been outside of Sydney Heads before, I determined to guard against unpleasant accidents by providing myself with a preventive against sea-sickness. I decided upon petroleum, 2x trituration, in 2-grain powders. When the vessel got outside the heads the fun commenced. I began to feel a bit queer, and a peculiar nausea began to steal over me. Down went one of the powders. Ten minutes afterward I took another, and the nausea disappeared. It came on again later on, but soon vanished before those magic powders. Whenever there was the least sign of its return, I took a powder, and thus prevented what might otherwise have been to me a very unpleasant trip. Several children who were in my charge at the time were successfully treated in the same way. Only recently a lady and gentleman whom I had supplied with a number of these petroleum powders to take with them on a voyage, on their return spoke in the highest terms of them, and stated that they were quite satisfied that sea-sickness *could* be prevented, as on other occasions they had always suffered from that malady.

Food as a Remedy.—The first place, says *National Hospital Record*, in which all the best scientific knowledge of food, as a remedial agent, should be applied, is the hospital kitchen. The hospital kitchen of the future will rival the operating-room in cleanliness and convenience when it is clearly recognized that the skill of the physician or surgeon is of little avail if the diseased and inflamed tissue cannot be replaced by normal conditions. Nothing but food can furnish the blood-current with the substances from which the cells may choose those essential to them. However fully he may be sustained for a time by the products of the chemist, it is of the utmost importance to the final recovery of the patient that he desire natural food in sufficient quantity to regain his strength. The neglect of the heart of the whole hospital, the kitchen, is hard to understand until we realize that this same neglect pervades the community in regard to individual homes, and that the medical schools treat of food only in relation to disease, and not in relation to healthful living.

Value of Eggs in Disease.—W. S. Ely (*N. Y. and Phila. Med. Hour*) makes a plea for the more frequent use of eggs in disease—given in large numbers. He reports splendid results in cases of neurasthenia, tuberculosis and various acute diseases. He has frequently prescribed a raw egg an hour—twenty-four whole eggs a day—in serious conditions of nervous exhaustion; and in the progress of pneumonia, diphtheria and fevers marked by high temperature and rapid waste. This number is at times well borne, and has often lessened the necessity for alcoholic stimulants. Eggs may be taken in various ways, soft boiled, shaken with milk, but most easily, he thinks, raw, from a tumbler in which

they are freshly dropped from the shell. The patient is instructed to swallow the yolk, enveloped in its membrane, and floating in its albumin. Passing over the tongue, the yolk elongates, fits the pharynx and esophagus in the act of swallowing, and the mouth is left clean and free from any taste. Some moral force on the part of the patient, nurse and doctor, may be required to overcome a repugnance to the treatment referred to, but as a rule he has no difficulty in securing obedience. In one case of typhoid fever he gave thirty-six eggs and five quarts of milk daily for a week. Occasionally the patient is unable to manage the egg diet, and nausea and diarrhea are produced. In such cases he tries the white of egg alone or variously combined. He has given the whites of forty-eight eggs daily in typhoid fever.

Subcutaneous Nutrition.—For the purpose of determining whether certain albuminoid substances could be injected subcutaneously, without the unpleasant sequelæ attending the injection of the ordinary albumin or albumoses (peptones), a series of animal experiments have been undertaken by Trolldenier (*Berl. Klin. Woch.*, Oct. 5, 1903; *Med. News*). The albumin was in solution and in the form of an intermediate product between true albumin and the ordinary commercial peptone. It was assumed that the more nearly the material approached the natural, unchanged albumin, the more readily could it be employed to furnish a substitute for the albumin in the body. The experiments were made in dogs, a 10 per cent. solution of the material being injected subcutaneously, in doses of from 50 to 100 c.c., under strict aseptic precautions. These experiments showed that the albumin was not excreted with the urine and the dog in sixteen days increased 0.5 kgr. in weight. The only difficulty seemed to be the development of painful abscesses at the site of injection, due to the slow absorption of the material injected. These, however, healed readily, and did not interfere with the good condition of the animal. Further experiments were made until a solution was finally obtained which contained 8 per cent. of the intermediate products mentioned, and also 0.6 per cent. of cooking salt. This was also employed in two human subjects and a number of dogs with much better success, causing only a slight swelling which soon subsided.

Importance of Oatmeal in Diabetes.—The oatmeal course of treatment outlined by Van Noorden (*Berl. Klin. Woch.*) consists in the daily ingestion of 250 gm. of oatmeal or rolled oats thoroughly cooked with 300 gm. of butter and 100 gm. of albumen. The last-mentioned may be in the form of a vegetable albumin cooked with the oatmeal, or the white of an egg may be added after it is partially cooled. The porridge thus made is taken at two-hour intervals. His experience with a hundred cases shows it is possible on the diet to partially or completely banish the sugar from the urine and likewise the acetone bodies. It is contraindicated in mild cases without diaceturia, as the oatmeal is not tolerated by such subjects. No theory has yet been advanced to explain the facts observed in regard to the benefits from a change to oatmeal in severe cases except that it may possibly be due to a difference in the kind of starch. They confirm the necessity for individualizing treatment in diabetes. He has been testing this oatmeal diet for more than a year and gives in tabulated form 5 typical cases illustrating the effects as observed in various groups. He allowed at the same time a little brandy or wine and a little strong black coffee. The oatmeal he uses is Knorr's Hafermehl or the Hohenlohe Haferflocken. The effect on the sugar in the urine is never so pronounced with Winternitz's milk and Mosse's potato diet as is obtained in appropriate cases with the oatmeal.

Bread and Fruit Diet.—Haig (*Med. Record*, Oct. 31, 1903) recommends a bread and fruit diet as specially serviceable in all those conditions seen in the collaemic or high blood-pressure group of uric acid blood poisonings. The washing-out plan of treatment is the height of folly. A dry diet is indicated. The author asserts that twenty-one ounces of bread stuffs and seven ounces of dried fruits will be the amount and quality of food required in the twenty-four hours. The blood pressure on this form of diet may easily be reduced by twenty to forty millimetres of mercury in a short time and the patient's symptoms will disappear or be greatly relieved.

The Differential Recognition of Human Blood from that of Other Animals. Bordet some time ago established the following fact ("Med. News"). If the red blood corpuscles of a certain animal be introduced hypodermatically into the blood of another animal there will be formed in the serum of the latter substances possessing certain properties toward the blood of the first animal, known as agglutination and hemolysis. This action is specific, inasmuch as the serum shows its effect only toward that animal and is inert as regards any other. The same is proved to be the case with other fluids of the body, such as milk. Several investigators went further in these experiments and established what is known as the biological method of differentiating the blood of man from that of other animals. P. N. Diatroptoff ("Roussky Vratch," Sept. 13, 1903) resorted to this method in the notorious case of the murder of a boy, said to have been committed for ritual purposes and which served as the immediate cause of the Kishineff massacre. The question to be decided was as to whether the blood found on the boy's clothing was human or not. To obtain the requisite serum, blood serum from man was injected into a rabbit. The human blood was collected from the mother's end of a cut placental cord into a sterilized tube, and then subjected to centrifugal action. During a period of twelve to sixteen days each rabbit received between 60 and 80 c.cm. of human serum. Six days after the last injection the blood obtained from an experimented rabbit was compared with the blood of a healthy rabbit. Two drops of human blood in 5 c.cm. of a physiological salt solution when mixed with 1-4 c.cm. of the serum from the experimental animals caused in one-half hour marked turbidity, and later on a sediment; while a mixture under the same conditions of horses blood, or of human blood with that of another rabbit, failed to give any reaction. The examinations of the dried blood on the boy's clothing took place four months after the presumed murder, and gave undoubtedly positive results. The author considers this biological method of blood examination of immense importance in legal medicine. The reaction is every evident and remains so for a considerable time, for almost two days.

THE CLINIQUE

A CASE OF SUSPECTED CIRRHOSIS OF THE LIVER.

The next case for discussion is a case which is neither a truly medical one, nor is it wholly surgical; we may say it is on the border line between the two. This case is one of abdominal disease, and offers some very interesting as well as pertinent features. The man is an Italian and can understand no English. We have consequently been unable to obtain any adequate history. As far as I have been able to ascertain his sickness began fifteen days ago. At that time he developed a pain in his abdomen and noticed a gradual swelling of the part. He seems fairly well nourished. At the time of admission he had a temperature of 102 2-5° and still complained of abdominal distress. Since then his temperature came down very quickly and has lingered around the neighborhood of 100°. With the exception of this reduction in temperature, his condition to-day is practically the same as it was on admission. The physical appearance of the patient is very deceptive. Judging from his face you would be lead to the conclusion that he was in a state of good bodily health. We find, however, upon examination that he is really rather poorly nourished. His clavicles stand out very prominently, and there is a decided depression, both above and below them. His temporal vessels show a marked tortuosity, and there is a distinct manifestation of an atheromatous condition affecting even the veins. The radial artery seem somewhat hard to the feel. If I run my fingers up and down this artery, I receive a sensation as though I were feeling a bird's trachea. He has for his age, which is forty-five, an unusually advanced grade of atheroma. It is very unusual at this age to find so pronounced a grade of the disease. Atheroma is an affection which usually begins at about this man's age, but it is unfortunately one of those diseases which can seldom be recognized until they have advanced too far to be benefitted by any means within our power. It cannot be appreciated until it has arrived at the stage of nodular change. Were it recognized before this time, treatment might induce absorption, or even effect a cure. There is in this man's case a very advanced stage of the disease, and such a condition occurring at this age renders highly probable the presence of a specific cause. Examination of his chest shows no very striking features. The clavicles, as I said before, are unduly prominent, and there is some arching of the body, as though some respiratory trouble was present. Upon looking at the abdomen, however, we notice that it is very large, and shows a marked dilation of the veins on both the sides and front. There is no congestion of the veins immediately around the urafilicus, giving it that peculiar appearance so frequently noted in cases of cirrhosis of the liver. The general shape of the abdomen is indicative of a uniform distension. By physical examination of the chest I found a suspicious area in the right apex. The impairment is very slight, but it may have some very distinct bearing on the case. There are over this impaired area a few squeaking subcrepitant rales. These physical signs are, in themselves, of no importance whatever, but combined with the emaciation and with a suspicious sputum, they may be of much significance. It may, however, be as it were, only a side light and wholly independent of the abdominal condition. It may probably be only a pleuritic condition.

Palpating the abdomen, the first thing that attracts my attention, is the peculiar form of resistance it offers. This fact is not necessarily of any pathognomoic significance, but it is of some diagnostic importance. The resistance is of a doughy nature, and seems to indicate rather a condition of general thickening of the abdominal wall than of a distension. By tapping with my finger, I can easily determine a fluctuation wave. This is generally taken as pretty conclusive evidence of the presence of liquid in the abdomen, and in this case, moreover, it confirms the suspicion which we had from inspection alone. Percussion in these cases is a rather unreliable procedure. Even with a large abdominal effusion, percussion of the right flank may give us a tympanitic note, due to the close proximity of the coecum on this side of the abdominal wall. In my experience I have frequently found this condition to be true. As I press lightly over this area there is a dullness, but I can easily bring out a tympanitic note by harder percussion. On the left side there is entire dullness almost to the middle line. The patient will not be placed on his left side. In this position, even very superficial percussion on the right side brings out a clear tympanitic note. On the left side there is an absolute dullness, extending up to the middle line. Another useful way of determining the presence of liquid in the abdomen is to place our hands under the patient's left side (if he is lying on this side), and suddenly push up with the fingers. This will elicit a fluctuation wave. In very placid abdomens, however, this sign is unreliable.

We have thus far determined the presence of liquid in the abdomen, but we have as yet no clue as to its nature; whether it be inflammatory or dropsical in character. The fever which is present cannot be taken as a reliable evidence in explanation of the presence of the fluid, because of the apical condition which I have referred to. We would naturally suspect cirrhosis of the liver, because this condition is the one which we find most frequently at this man's age to be the cause of the presence of liquid in the abdomen. It is a disease which, like atheroma, gives us no evidence of its presence until it has reached a very advanced stage. Percussion of the liver shows me that its upper border is at the normal level. The lower border, however, is slightly above the point where we would expect to find it in health. So far then as the percussion area indicates, we have a liver which is somewhat smaller than normal. This sign is, however, a very uncertain one and cannot be relied on for a diagnosis of cirrhosis. It is a condition which we must accept as an accessory to the other signs of this disease. Habitual enlargement of the spleen is one of these signs. In this man's case, on account of the great distension of the abdomen, the determination of this sign has been very difficult. It has been possible at times to determine by palpation and by percussion that such an enlargement did exist. This enlargement and consequent additional weight have so pulled upon the attachments of the spleen, which

are weak at their best, that there is a displacement of the organ, forward and downward. The only way which we can palpate this spleen is by instructing the man, as I now do, to take a deep breath. At the same time I press upward from behind between the ribs. As I do this, I get a vague sense of resistance to palpation over the splenic area. Accurate palpation at this stage of the case is impracticable.

Before it is possible to make a diagnosis of cirrhosis of the liver, we must exclude the existence of tubercular peritonitis. Toward this end we must palpate with extreme care for the determination of the presence or absence of modular masses, indicating enlarged tuberculous mesentrino glands. These are very elusive to the examination, and frequently they can be found only after repeated careful search So far I have been unable to find any in this case.

Summing up the case then, we have a patient whose history we have been unable to ascertain, who has a suspicious area in the right apical region, whose area of hepatic dullness is slightly diminished and area of splenic dullness increased, and who shows an enlargement of his veins. So far as these facts are concerned the indications point to a diagnosis of cirrhosis of the liver. There are more of the associated conditions, however, that are usually so essential in the making of such a diagnosis. We can obtain no history of hemorrhage, nor any history of alcoholism. The diagnosis must, therefore, be made with extreme care, and only after the exclusion of all conditions which might produce these same symptoms. The right apex may be tuberculous. We will make a careful examination of the patient's sputum. If the tubercle bacillus is found, a flood-light will be thrown upon the case. Even if cirrhosis of the liver is present, we should be prepared always to find a condition of tubercular peritonitis, for this is a condition which is very frequently the termination of cirrhosis and causes the death of the patient. Death in these cases is preceded by a coma, due probably to auto-intoxication by substances which are in health destroyed by the liver. This might be a case of tubercular peritonitis with the co-existence of cirrhosis. But I think this is very improbable in the face of the indications. Cirrhosis is much more probable. We have in reality no indications pointing to tubercular peritonitis. It is only a suspicion which we form in view of the condition in which we have found the apex of the right lung.

Before we can begin any definite treatment in this case we must make our diagnosis certain. This we can do only by making an exploratory incision into the abdomen and drawing off the liquid. If the case is found to be cirrhosis of the liver it is an excellent one for the practice of the operation recently instituted. This consists of stitching the mesentery to the abdominal wall with the purpose of establishing a collateral circulation for the liver by the anastomoses of the mesenteric vessels with the vessels of the abdominal wall. This operation has been performed a number of times, and in one case in particular, I have seen excellent results follow. The operation is one which because of our tardy diagnosis of the condition is performed only after the disease has reached a very advanced stage. For this reason most of the cases end fatally. The disease is one which has no early manifestations. The patient apparently enjoys good health until the trouble is far advanced, and it is only at this very late stage that we can recognize it. Our only evidences in the early stages is that which is furnished by the physiological chemist upon his examination of the urine. In time, I am certain, the findings of the physiological chemist will be of such a nature as to make possible an early diagnosis and a cure. At present, however, the best we can hope for from our treatment is a temporary improvement and perhaps a slight prolongation of life.

Electrothermic Hemostasis.—The advantages of substituting the electro-cautery for ligation of vessels, especially after operations on internal organs, are set forth by A. Goldspohn, in the "American Journal of Obstetrics" for August, 1903, as follows:

Patients are more comfortable after operation, because the nerves in the stump are rendered insensitive, which is not true in the ligated stump; as these pedicles are probably sterile and become disintegrated and absorbed, they cannot give rise to visceral adhesions, as ligated stumps so often do. There is less blood lost, because the procedure is complete and wholly an antecedent or preventive one, which is not so true of hemostasis by ligation, in which it is often better to avoid the formation of a large stump by a preceding ligation **en masse**, and to tie the individual spurting vessels after the severing incision has been made. And when this cut is made within the limits of the band of baked tissue, as can be done after the larger forceps have been used, there is no show of blood on either side of the incision. The electrothermic method certainly more closely approaches the ideal, because it does not involve the introduction of a foreign body, and it is more aseptic than is the use of any kind of ligation-material, which may be either badly prepared or infected by the only omnipresent instruments—the hands, which cannot be boiled. In vaginal hysterectomy for cancer it is superior, because it mostly destroys the tissues which otherwise compose the stumps or pedicles, and thereby lessens the chances of a recurrence. It is also of distinct advantage as doing away with a most difficult and tiresome form of ligation, and a very objectionable use of clamps, etc. It thus facilitates a highly important part of the operation, viz., closure of the intestinal cavity, and prevents a series of very dangerous intestinal disorders, which so often follow the sojourn of a foreign body within the peritoneal cavity. By avoiding ligatures it obviates the risk of secondary hemorrhage, and also of infection from ligatures which are contaminated before being absorbed or cast off.

Proper amount of sleep.—A proper amount of sleep is, of course, absolutely essential to continued good health; but if dietetic habits are correct, it is a matter which will regulate itself. If a rule is needed, one will follow naturally from the fact that almost every one feels languid on waking and is disposed to take another nap, no matter how long he has been sleeping. This is a morbid sensation which it would take too long to explain here. It is enough to say that lack of sleep should be made up, if possible, at the beginning, and not at the end. The best general rule is to rise at a given hour every morning, whether tired or not, and go to bed when sleepy.

CORRESPONDENCE

CHILD LABOR.

To the Editor of THE MEDICAL TIMES:

We must confess that it is only with difficulty that we can attempt a dispassionate discussion of this subject, which appeals so strongly to the emotions of a true man or woman. The temptation indeed, is to use language which would be condemned by the orthodox and which would represent merely a figure of speech to the unorthodox. Lay speakers and writers for the popular press may safely be trusted to treat the subject with sufficiently eloquent invective; the pages of a medical journal should be devoted to a consideration only of the scientific and sociologic phases of this, or other topics, as they appeal either to the technical ability or the influence of the physician.

Considered broadly, useful occupation of children is by no means to be condemned. Speaking not only as an adult, but from actual personal memory of childhood, we are convinced that there is an education and an exhilaration from the performance of useful work which bear favorably upon the physical, mental and moral development of the child. The child enjoys the sensation of doing something which is not merely make-believe, and his self-respect and self-reliance are increased by the consciousness that he has taken some part in the earnest of life. Kipling, in his "Captains Courageous," and many other authors, have emphasized the lesson that the child who has been brought up on the theory that childhood should be a period of pampered idleness, is not so happy as the apparently less fortunate child who has had to share in the labor of his parents. But the important point to be considered is that child labor should be conducted under parental guidance, having regard for the physical and mental strength of the child, and that the control of the child should be tempered with love. The term "parental" needs a qualification. There are fathers and mothers who send their children to school for the sake of getting rid of them, and who set them tasks with the cold-blooded idea of getting work out of them, without paying for it. On the other hand, there are superintendents and matrons and even ordinary employers who control the labor of children with all the unselfish care and affection of parents.

The child labor which is now engaging the attention of philanthropists and against which humane legislators are trying to frame laws is of an entirely different nature. It is an organized slavery which crushes the mental, moral and physical welfare of the child and, from the pulp, prepares so much crude material. Even negro slavery, except under the worst conditions, was less cruel than the white slavery of the new South and of some portions of the North, for the negro child was seldom separated from his parents at an early age; he usually enjoyed some of the simple pleasures of childhood; he was often indulged by his masters, and his work was rarely excessive and almost never performed under the unfavorable hygienic conditions of systematic child labor in factories and mills.

Physiologic and psychologic students of childhood, show that the young child requires long hours of sleep, that he can with the utmost difficulty apply himself to any one task for a considerable period, and then only with excessive fatigue; that discipline which interferes with the prompt attention to the demands of hunger, thirst, the emunctories, or the inclination to rest actually fatigued groups of muscles or to exercise cramped groups, or which prevents an abundance of open-air exercise, is prejudicial to his health. It is interesting to follow the details of experiments which show the gradual increase of muscular strength and of the duration of the periods of mental concentration, but for practical, sociologic purposes we believe that the following rules may be summarized for guidance of philanthropic effort and of legislation:

1. The minimum age at which the child should be considered as an economic factor is ten. Under this age, there is no objection to having the child undertake simple domestic duties under the immediate guidance of parents—granting that the parents deserve the name—or of those who stand in the relation of parents, as in charitable institutions. No formal wage earning or attempt at systematic utilization of the energies of the child except in reference to his own education and physical development, should, however, be allowed.

2. From the age of ten until puberty has been passed and nearly full skeletal development has been attained, i. e., until about eighteen for girls and twenty for boys, the nature and duration of employment should be rigorously guarded by law, based on individual medical examination of the employed and not on arbitrary age-limits. That is to say, while the average boy of fourteen may safely be allowed to work so many hours and at such and such occupations, the individual strength and endurance should be considered, rather than the mere age.

3. As a purely sociologic matter, considering American ideals and the wealth of the country, child labor should not be allowed to interfere with the attainment of a reasonable educational standard. We would suggest as a medium, to be accomplished before any child is allowed to leave school, the equivalent of the first six years of the ordinary nine-year, grammar school course, in vogue in most northern cities. Such an education, comprising a fair ability to read and write English, a fair understanding of arithmetic, geography and some accessory studies is practically sufficient for the average, unambitious rank and file of the industrial army. With this foundation, night schools and private study render it possible for the ambitious youth to secure a full grammar school or even high school education, by a reasonable additional effort.

4. The defective classes should be educated and, so far as possible, employed in special schools or colonies, adapted to their respective handicap.

5. The hours of labor should be graded both with reference to the maturity—corresponding to the average development at certain ages—of the worker and the nature of the employment. The maximum length of the day's work should be twelve hours, inclusive of a reasonable "nooning;" of a week's work, six days; and of a year's work, fifty weeks, not counting the ordinary legal holidays as part of the vacation. Indoor and other confining or arduous employment should

have a day of not over eight hours. For children under the average development of twelve years, the day at light and not confining work, should be eight hours, at most, and there should be a half-holiday each week. For indoor or other confining work; the day should not exceed six hours.

6. As to the nature of the work, a rigid interdiction should be made of all employment which is essentially dangerous, either on account of possible traumatism, poisoning, as by lead, phosphorus, &c., excessive muscular or nervous strain, injury to organs of special sense, predisposition to deformity, as by working constantly in cramped attitudes, or in which moral depravity is favored. Such limitations should be construed in a reasonable spirit. It would be impracticable to exclude children from occupations in which machinery is an adjunct, or to say that artificial light should never be allowed or that the child should never work after dark or that the patrons of a messenger service should be investigated with reference to their morals. We cannot establish an absolute cordon against physical and moral danger, but must be content with adhering to a standard that is, on the whole, fairly high in these regards.

7. Physical and moral sanitation must be inforced, especially when large numbers of children and youths are employed in the same factory. It is unnecessary to state in detail that polluted water should not be given them to drink, that toilet rooms should be adequate, accessible at all times when necessary and not used in common by the two sexes, nor need we dilate upon similar truisms. In general, the child worker should be as well cared for, so far as actual physical and moral health is concerned, as in a public school or an average humble home.

8. The ideal employment for children, granting that they must work at all as wage-earners, is domestic, that is of the same general nature as boys and girls of the middle class ordinarily perform for their parents. Such work differs widely for boys and for girls, and for city and country, but we need not go into details. It is impossible to regulate the hours and sanitary details for a girl doing light housework, tending children, &c., or for a boy running errands, sweeping sidewalks, taking care of stoves, &c., in the city, or assisting in the chores of a farm. A suitable system of inspection can, however, obviate gross abuse of trust and insure, at least, the absence of positive unkindness.

9. An important subject is the wage of the child worker. Legislation on this matter must be guided by actual values, as well as by sentiment. Under existing conditions, unskilled adult labor, male or female, is actually worth about a dollar a day; the compensation for domestic service of women, for farm work and military or naval service for men, as well as for some other kinds of labor, being naturally payable partly in cash and partly in sustenance. The wages of minors are, obviously, lower still. The domestic service of a young boy or girl is, certainly, of no greater value than a very moderate quality of board and clothes, though a humane employer would add a trifle for spending money. A good rule would be to require the support of a boy or girl by the parents, or by the State, acting in their stead, until the cash value of services reached a minimum of $2 to $2.50 a week. There should be no reasonable objection to a less rate for partial employment, while allowing the pursuit of studies. Provision should be made that child labor should not be fostered by mercenary motives on the part of parents and that the earnings should be used in the interests of the child. Indeed, for very young children, for instance, under the age of twelve, the general principle should hold that if the parents are unable to provide proper care, some institution should assume the duties of parents, and it is also desirable, though perhaps scarcely feasible, to prevent the rearing of children by persons unable to provide properly for them. Numerous individual exceptions must, however, be made in the application of the principle stated, especially in regard to temporary financial embarrassment and to partial employment of the child's time, as in selling papers, running errands, &c., which does not interfere with attendance at school.

In reading what we have written, it seems that we have succeeded beyond our expectations in dismissing sentiment from the discussion. This has been due to no lack of feeling, but to a realization that all suggestions bearing on possible legislation must be graded according to the lowest permissible standard. In our own country, the richest in the world, and affording the best opportunities to the poor, only about one family out of ten can have the income which we should naturally set as the minimum which all industrious and worthy members of society should enjoy. If the dreams of Socialism could be realized to the extent of dividing all excessive wealth, still not over fifteeu per cent. of our population could enjoy the comforts, not to mention luxuries, which the philanthropist would wish for all. If Socialism could be carried out in its entirety, no one would have enough of this world's goods to satisfy the ideals of the humanitarian, although there would doubtless be much of that kind of contentment which rejoices that one's neighbor is no better off than one's self. This hard lot of mankind reacts upon children, and it would be the most foolish philanthropy to insist that all children should be reared in a state of indulgence which would render most of them unhappy and discontented for the remainder of their lives.

A. L. BENEDICT, A. M., M. D.

Buffalo, N. Y., January, 1904.

George Keferstein ("Muench. Med. Woch.", Aug. 18, 1893,) deplores the widespread use of beer in Germany, and says that, so far as pathological lesions are concerned, no appreciable differences exist between beer drinkers and those addicted to the stronger alcoholic liquors. Furthermore, the early idea that beer-drinking would largely do away with the use of brandy, whiskey, etc., has proved fallacious, so far as Germany is concerned. The nutritious qualities of beer which have been loudly exploited by many are not to be considered when compared with the damage wrought by the alcohol which it contains. Taken all in all, the substitution of beer for the stronger alcoholic liquors as a beverage has been a failure, since its devotees neither live longer nor show a better mentality than the consumers of brandy, whiskey, etc.

MISCELLANY

—Order your life so you can eat with relish a substantial breakfast if you would accomplish much and work without friction.

—There is behind the last molar tooth a space sufficient for the passage of a small tube into the mouth for feeding a patient with spasmodic closure of the jaw.

—The raw, or merely warm oyster, is self-digestive. Cooking destroys the naturally associated ferment and renders digestion necessary in the ordinary manner.

—Pearls, it is said, should be enclosed in a box containing a piece of the root of the ash, and under these conditions they never lose a jot of their pristine beauty.

—The Substitute-Selling Druggist: "Great Pluto! Give me a drink of water to cool my parched tongue!"

Lucifer: "We havn't any water; but here's something of our own make that's just as good."

—The city of Dresden will open the first institution for the cure of drunkenness on the continent October 1. Patients must be examined as to their sanity and be diagnosed as curable, and must voluntarily submit to a healthful regime, such as farm work. They will have good moral surroundings, and must pay 45 cents a day. Patients may stop three years in the institution.

—It is said that a newly laid egg will keep fresh for many months in a 10 per cent. solution of silicate, and will then be undistinguishable from a fresh egg. It has been reported that chickens have been hatched from eggs preserved for twelve months in this way. This extraordinary result shows that not only are chemical changes prevented, but that the vital characteristics of the egg remain unimpaired.

—Sir Benjamin Ward Richardson found, after long experiments and practice, that 64 degrees Fahr. is the best temperature in which to conduct mental labor. If the temperature falls below this the mind becomes drowsy and inactive, and if it rises much above there is a relaxed state of the body and mind which soon leads to fatigue and exhaustion. It is important that the temperature be the same in all parts of the room and that it be steadily maintained.

—An inquiry by Dr. Alfred Wolff into the mysterious cause of cancer has yielded an unexpected conclusion, which promises temperance advocates a new and powerful argument. Taking the widest possible survey of cancer areas throughout Europe and in the United States, Dr. Wolff discovers, says "American Medicine," that all the districts of high cancer mortality are districts in which beer or cider are largely used. Bavaria, for instance, heads the list in Germany, and Salzburg in Austria—both great beer-drinking provinces. In France the statistics are still more striking. There is the most marked contrast between the high cancer mortality in beer-drinking departments and the low death rate from cancer elsewhere. The increase of cancer in England during recent years, Dr. Wolff thinks, has probably a direct relation to the increased consumption of beer.

—Two deaths at Johnstown, Pa., apparently traceable to the use of injurious drugs to preserve milk, have prompted State Dairy and Food Commissioner Warren to inaugurate a general movement against those who sell adulterated milk. Of 1,000 samples obtained in the eastern and western parts of the state, 75 per cent. contained formaldehyde or other similar fluid. A State Laboratory for the examination of foodstuffs is soon to be installed in Harrisburg.

—An interesting case of the longevity of a feeble youth was revealed in a police court in Paris. A man who called to complain of a burglary in his apartment, said his name was Duval and his age 100 years. The story was confirmed by his papers. Duval was born July 4, 1803, and as a youth was refused as a conscript. He has lived in one house ninety-nine years, and has grown progressively stronger. He eats and drinks well, walks strong, and has a stentorian voice. He remembers seeing Napoleon in 1813.

—People will be surprised and delighted, says an English periodical quoted in *Health*, to find how well and cheaply their rooms may be made to smell like a well filled garden in summer. Put the flower petals you wish to preserve in any suitable box of wood or cardboard and add a sufficient quantity of very finely powdered boric acid. Intermix, and give the whole a turn about once in a while until it is thoroughly dried. A single pennyworth of boric acid will preserve quite a quantitiy of petals for years if so desired, with their original color and freshness, while the perfume will be as sweet and nearly as strong as that of the fresh blossoms.

—The Uhlenhuth test, which has been already used in the identification of human blood in murder trials, seems to have a further application in the public health service in determining meat substitution. There is considerable falsification, particularly in canned meats. It is notorious that large numbers of horses are slaughtered in this country, and almost none of the meat is sold openly on the market, consequently it is a fair deduction that it finds its way into canned meats. Canned veal in place of canned chicken is a well-known substitution. Now that the precipitation method of recognizing serums has come into use, all this will be done away with. The flesh of various animals, even in small quantities and when mixed with other meat, can be certainly recognized.

—In order to produce an apparently solid image of such an object as a broken bone or a foreign substance imbedded in the flesh, without the aid of X-Ray photography, Monsieur Guilloz, a French physicist, causes the tube producing the rays to oscillate by means of a cam revolving 300 times per minute. The cam is so cut that the time taken in moving it from one position of rest to the other is about one-tenth of the period of revolution. Two radiographic images of the same object, as seen from different points, are thus formed on the viewing screen, and by means of shutters, electromagnetically controlled by the oscillating apparatus, the right eye sees one image and the left eye the other, vision being cut off while the tube is changing its position. The result is that the combined image stands out like a solid reproduction of the object.

ORIGINAL ARTICLES

WATER AND AIR IN THEIR RELATION TO DISEASE.

BY A. M. LEONARD, M. D.

IT is a fact now well demonstrated that micro-organisms swarming on and near the surface of the ground find the conditions less favorable to their activity, and even to their existence, if placed a few feet underground. We know positively now that some soils are permeable to bacteria to a distance of less than six feet, and hence, while surface water may be quite contaminated, deep springs in the same region should show few or no bacteria, making this water suitable for drinking purposes, unless, of course, it is deeply impregnated with minerals. These collections of water may be considered subterranean water courses, which, as a rule, flow several feet each day in the direction of the lakes or streams which drain their basins. In Germany where these studies have been carefully worked out, it has been determined that these underground bodies of water have moved even more than a hundred feet a day. It is on account of these well protected bodies of water that lakes and streams are able to maintain a certain level to which they return after being swollen by freshets or depleted by drought. It is to Buhl and Seidl that the honor is due of calling attention to this great natural fact about fifty years ago. Pettenkofer has endeavored to work out the relations existing between the presence of epidemics and the varying heights of the "ground water level." They believe that these epidemics are not so much influenced by the purity of the drinking water of a region as by the presence of filth, which induces bacterial activity. During a protracted period of dry weather, there is a capillary flow toward the surface of the earth; as a result of this the living micro-organisms of the ground are swept upward to the surface; as this water continues to evaporate, the bacteria become stirred up in the dust, and are swept here and there by the air currents, even being carried out many miles over the open sea. Another factor is the practical result following the evaporation of water, the previously dissolved substances of course remain behind, and the water still remaining there makes a concentrated solution of these materials. Thus, while the ground water may be in itself harmless, its presence or absence is a matter of considerable significance. For example, such a disease as typhoid fever increases with the lowering of the level of the ground water, and it is claimed by many German observers that no great epidemic of typhoid fever can occur without a previous sinking of the ground water level. This local theory has been largely developed by the Munich School, and conversely they claim that no important epidemic of typhoid fever can occur during the time of a considerable rise of the ground water. These views have not yet been fully endorsed by American physicians, still they are clever and are worthy of our consideration.

Of course, the doctrine is generally believed that germs must be present to cause such diseases as typhoid fever and cholera, yet we all know that these germs will produce disease only when local conditions favor their activity.

Water will purify itself chemically under certain conditions, but stagnant water requires much longer time than running water. If this were not true the world ere this time would be a vast hotbed of typhoid fever and cholera. Emich has performed a series of experiments in which he showed that while water purified itself chemically if many bacteria were present, yet if he sterilized the same water by heating it, and kept it free from bacteria, it did not improve chemically until other bacteria had entered it through exposure to the air. As yet, examinations into the self-purifications of running streams have been quite unsatisfactory. In Germany the Spree was investigated by Frank, who found that the number of bacteria present before the introduction of the city sewage had increased upon the addition of this pollution, and yet a dozen or so miles below the water did not seem to be much worse than as if no city sewage had been dumped into the river. Other observers have proved that a running stream will purify itself to an extraordinary degree within nine miles after receiving the sewage of a large city.

Of course, one of the great problems in sanitation is the ability to detect in water morbific germs. Again, it is a well known fact that the commoner bacteria destroy the harmful ones, and yet, there is an extraordinary resemblance between these various germs. It is very difficult at all times, even for an expert, to differentiate well known disease-producing bacteria from other forms found in water. In this connection it is interesting to note some experiments made some years ago by an American observer, Dr. Currier. A swift, foaming mountain brook, that of the Kaaterskill "Clove," was tested at a point by Currier where it might have recently received the drainage of several hundred people, and where dilution seemed less conspicuously an obstacle than would be expected in many parts of the brook's course.

From Currier's observations it can be inferred that, under the most favorable conditions, a river tends to a certain degree to purify itself of infective and other bacteria introduced. So long as fresh contaminations are constantly entering, this purificative tendency is virtually inoperative. The liability to error, owing to recognized (not easily appreciable) contamination of the waters, lessen the value of any tests made with our rivers. Hence, for the purpose of definitely resolving a portion at least of the problem, Currier had recourse to a series of biological analyses of the Croton water in different parts of its flow through the magnificent aqueduct which for nearly half a century had so well served New York. By reason of its superficial passage and of the configuration of the country, the old Croton aqueduct followed a more devious course than the new one. Therefore, and because of the thorough aerification, the old aqueduct, although dark throughout, is for the purpose much like an ideal stream, and is admirably adapted for testing the question at issue. The samples were collected at such intervals as corresponded with the flow of the current, which averaged a rate of a little more than two and a half miles an hour. Plates were prepared from the water as soon as it had been taken out by means of the usual sterilized bottles.

Currier's results show that, under the best sanitary conditions the number of germs of bacteria present in a flowing water usually tends to become less after a course of a few miles, provided that no new ones introduced have taken the place of those that have lost their vitality. So, the question arises, How is this decrease produced? As factors possibly acting to bring about this result we may consider—dilution, sedimentation, subsidence, con-

cussion, chemical influence (including oxidation), light, heat or cold, and the previously mentioned and admitted antagonistic action of other micro-organisms. Dilution of the water in which they are living does not kill bacteria; and the fewer existing in a given water the longer can any harmful ones resent, probably resist, the antagonistic activity of the others. Dilution by a better water lessens, of course, the number previously existing in a given volume. Inasmuch as the little that is known on the subject leads us to infer that, of disease-producing kinds, a considerable number of individual bacteria must reach the vulnerable part of the invaded animal organism before they affect the health if they do so at all, we may believe that a lessening of the number of harmful bacteria by means of dilution renders water less unfit for drinking, yet does not make it absolutely unwholesome, even though causing it to appear relatively so. From various experiments it is known that particles settling in water carry down a notable proportion of the bacteria present. The chemical agents which are at times employed, by uniting with the organic matter present, effect much more than the merely mechanically-acting, weighty particles. Like several other investigations, Currier has at times during the last few years endeavored to determine whether in vessels of clear water from ten to twenty inches deep (also twice in tanks ten feet deep) bacteria settled to the bottom. The results have been neither uniform nor decisive, yet they seemed to manifest, in general, a slight tendency to subsidence. In laboratory tests the problem is rendered complex by the jarring of the building, the amount of air and light present, the variation of temperature, and other artificial influences unlike those operative in large bodies of water.

In all streams the capacity for self-purification exists; biologically, this is shown by a lessening of the number of bacteria present after several miles of flow, in case no fresh accession of interior water occur, while the pernicious varieties probably lose their harmful character, or, when not excessively abundant, are so diffused throughout as to be virtually harmless. Dilution seems the main factor in inducing this improvement, but oxidizing processes are of considerable importance in purifying waters. In rivers with very slow current or in lakes, probably some bacteria settle. They unquestionably do so when the state of the water is such as to induce sedimentation. The application of this principle has produced beneficial results in the water-systems of certain cities. "Antagonisms" among bacteria shorten the life of disease-producing germs in water where other (presumably harmless) kinds abound. This principle is now being adopted in the system of filtration now being installed in many of our large cities.

It is always easy to distinguish healthy from unhealthy soil; the fauna and flora of marshy waters differ only in point of quantity from those of drinkable waters. Frankel to study earth introduces the specimen to be examined directly into gelatine and breaks it up into minute particles by a stout platinum wire. Then he forms the gelatine over plates and reports his studies. He finds that the upper layers of even a virgin soil are studded with micro-organisms of the greatest variety down to a varying depth, generally three-quarters of a meter, but at this border line a sudden and great decrease in the number of bacteria present occurs as the deeper layers, even those belonging to the ground water region, are poor in or even destitute of germs whether aerobic or anaerobic.

McKowen has made an interesting study of the water supply of Naples, once one of the worst inflicted towns in the civilized world in the matter of pure water. Years ago the traveler was reckless indeed who drank water there, but now read this report:

"Pure water from a mountain stream called Serino, some eighty miles from Naples, was brought into the city and distributed during the month of May, 1885. Cholera had raged in Naples during the summer of 1884, but the introduction of pure water prevented a return of the epidemic in 1885. During the summer of 1885 cholera made as much havoc in Torre Annunziata and Castellamare (cities a few miles distant from Naples) as during the summer of 1884, because the inhabitants of those two towns still used well water. Many of the inhabitants of infected towns in Southern Italy and Sicily left their homes and sought refuge in Naples, whither they carried the disease, and in some cases these refugees died of cholera, but the pure Serino water prevented any spread of the epidemic among Neapolitans. The same thing occurred in 1886. During the summer of 1887 the Serino aqueduct was broken for three days, and Neapolitans were compelled in the absence of Serino water, to drink well water again. A week afterward the immunity from cholera produced by the use of pure water during the summer of 1885-6 ceased and the epidemic broke out again. The cholera caused only a slight damage, because the aqueduct was soon repaired, and the use of pure water soon put an end to the epidemic. Serino water enjoys such a reputation in the whole of Southern Italy that the railways have built portable cisterns to carry water from Naples to infected towns or cities, and the results have been marvelous. As an instance, Barletta had two hundred cases of cholera daily, and a liberal supply of Serino water furnished to the city by the railway reduced the number to twenty daily after forty-eight hours' use of pure water. Not only has Serino water produced such good effects with cholera, but the records of the hospitals for infectious diseases show equally remarkable results. Statistics for three years previous to the introduction of Serino water and for the three years subsequent are as follows:

	Before.	After.
Typhoid fever	333	76
Typhus fever	317	77
Low fevers	82	26
Intermittent	93	62

No point is more distinctive of civilization than a care for hygiene; the question is growing rapidly and we have seen our nation undertake huge problems in Cuba, Porto Rico and the Philippines. At congresses at home and abroad these problems are being discussed. For example:

M. Hueppe, of Wiesbaden, in the Vienna Congress of Hygiene, in a comparison of the mortality of typhoid fever and cholera in the cities which derive their drinking water from conduits, arrived at the conclusion that in ordinary drinking water the conditions are not favorable to the propagation of the germs of the disease; but sometimes, under certain conditions, the germs are preserved for a very long time. To prevent contamination he recommends some of the following measures:

(*a*) To preserve wells and fountains from contact with the waste-water pipes proceeding from household drains, and to construct reservoirs with impermeable

walls, and place the wells and fountains as far as possible from privies; (*b*) to supply the absence of wells and fountains by water brought by canals; (*c*) to purify the sources of the canal by natural filtration of the waters, by perforation (boring); (*d*) to filter through sand all other water, by small irrigation ducts, and then collect the filtrated water; (*e*) to avoid the accumulation of stagnant water by continued and rapid action of hydraulic machinery. In the discussion which took place on this paper, Roehl, of St. Petersburg, related a series of experiments which proved that the vitality of the bacteria in the water depended on the chemical property of that water.

Another important subject which has not yet received the attention it deserves is the impurity of the air as a cause of disease. Cadeac and Malet studied the transmission of infectious maladies by expired air in cases of charbon and rot in sheep, and reached the conclusion that the fever of charbon is not transmissible by the expired air, but that water obtained by condensing the vapor of expired air from animals suffering from the rot inoculated into healthy animals did not transmit the disease in a single case. These experiments were all negative, even when thirty animals were made to inhale for ten hours the air expired by nine diseased animals. Hesse has proved that there is a more rapid gravitation of organisms in still air than in air current, while bacterial organisms gravitate more rapidly than mould organisms—micro-organisms can be carried one hundred and twenty nautical miles to sea. This question has a practical bearing on the ventilation of houses and public edifices where too frequently the air from the flues is taken directly from the cellar in which there may be several sewer connections. The openings for drawing the outer air into heaters should be above the ground and covered by wire-netting. The purity of the cellar air is the basis for the purity of the house air. Williams has given four working rules for hospital guidance as follows:

1. To maintain the proper standard of purity in a hospital atmosphere in this climate, some form of artificial ventilation combined with warming the air is necessary.

2. That no system which does not provide for a change of air at least three times an hour, beyond the extraction by fireplaces, should be adopted.

3. That if extraction by heat is used, it is of the utmost importance that the temperature of the extracting shaft should be maintained as thoroughly in summer as in winter.

4. That the water closets and slop sinks of a hospital should be ventilated separately from the wards and corridors.

Professors Camelly, Haldan and Anderson reported to the Royal Society of London some interesting investigations on carbonic acid organic matter and micro-organisms in the air, especially in schools and dwellings. Their deductions are as follows:

"1. As we pass from four-roomed and upward to three, two, or one-roomed houses, not only does the air become more and more impure as indicated by the increase in the carbonic acid and organic matter, but more especially of the micro-organisms, but there is a corresponding and similar increase in the death-rate together with a marked lowering of the mean age at death.

"2. The rapid increase in the death-rate as we pass from four to one-roomed houses is by far the most marked in children under five; the death-rate among these children in one-roomed houses is nearly four times as great as in four-roomed houses, whereas the general death-rate is not quite twice as great; further, although there is still a marked increase in the death-rate for all above five years of age in the smaller houses, yet this increase is comparatively small and is not evident unless the deaths in the infirmary and poor houses be included in the one and two-roomed houses."

In view of the interest in the Russo-Japanese war, we give the observations of Dobrotvorski on the air in the holds of Russian men-of-war, which are very interesting:

"In the bilges of the *Peter the Great*, a famous vessel in the Russian Navy, the moisture was found to be 89.5 per cent., the CO_2 4.6 per 1000, the free ammonia 0.026 milligramme. The litres, and the albuminoid ammonia 0.246 milligramme. The highest estimate of CO_2 were in the frigates and floating batteries, the lowest in clipper ships. In the engine-room of the *Admiral Spiridoff*, an iron frigate built in 1868, the CO_2 was found to be as high as 8.22 parts per 1000. The ammonia found varied a great deal, being, however, only slightly higher in the frigates and batteries than in clipper-built vessels, and bearing little relation to the quantity of CO_2; thus in the bilges of the *Peter the Great* the albuminoid ammonia was 0.246 milligramme per 1000 litres, in the engine-room of the *Admiral Spiridoff* 0.154 milligramme, while in a part of the floating battery *Pervenets*, where the CO_2 was only 2.37 per 1000, the albuminoid ammonia was 0.564 milligramme per 1000 litres."

THE TOXIN AND ANTI-TOXIN OF PNEUMONIA.*

BY FRANK C. WILSON, M. D., LOUISVILLE, KENTUCKY.

PNEUMONIA, or inflammation of the lung structure, has, as a disease, been always dreaded by the laity. Its type is often mild, with a natural tendency to recovery after running a definite course, while at other times it takes on almost a malignantly fatal character from the first. The progress depends much upon the condition of the system, being more favorable in the healthy, young and vigorous—less so in the old and those whose constitutions have been broken down by excesses. If other and vital organs, such as the heart and kidneys, have been crippled by previous diseases, the fatality will be great.

Commencing with a severe chill followed by high fever, quickened respiration and pulse—a flushed face, often on the side involved—little or no pain unless complicated with pleurisy, at first slight expectoration, soon becoming markedly viscid, abundant and rusty color, and we have a disease which is undoubtedly constitutional—affecting the entire system.

On the other hand, the local manifestations in the lung are so marked we naturally question which takes precedence—whether the disease is a general or constitutional one with local manifestations, or the local inflammation primary, the development of the constitutional symptoms secondary.

The discovery of the pneumococcus germ is a strong argument in favor of the latter theory and classes the disease as infectious or communicable.

It is a well established fact that bacteria, in their de-

*Read before the Louisville Medico-Chirurgical Society.

velopment and growth, produce and give off poisonous or toxic principles. And it is the absorption of these which gives rise to the constitutional symptoms, such as fever, malaise, etc.

It is also a well known fact that the system is provided with defensive cells capable of producing an antidotal substance or principle which will antagonize or neutralize the toxin or poisonous principles introduced by the bacteria.

This may be in sufficient quantity to entirely overcome the toxin and with the help of the phagocytes the lodgment and development of the pathogenic bacteria may be prevented and the system may be said to be immune against that particular germ.

Each specific germ produces its own special toxin and under the stimulus of this the cells of the circulation produce the appropriate anti-toxin.

Nature is always a bountiful provider; and, in the production of anti-toxin there is always manufactured an amount in excess of the quantity needed to neutralize the toxin. This excess gradually accumulates in the serum of the blood and may afterward be withdrawn and utilized in supplementing the natural supply in other systems. This fact is very clearly stated in Behring's Law—"The blood serum of an animal which has been rendered immune against a certain infectious disease, when injected into the body of another animal has power to protect the latter individual against the same disease, and to cure the disease after infection has occurred."

In pneumonia, under the stimulus of the toxin elaborated by the pneumococcus germ, the system produces the appropriate anti-toxin. If the system is strong and vigorous this may be in sufficient quantity to overcome the constitutional effects of the toxin—the germs may be destroyed and the disease terminated in its natural course.

If sufficient, the system may be overwhelmed; new portions of the lungs invaded, neighboring vital organs crippled and death result.

That nature does not produce in the circulation pneumococcus anti-toxin in excess of that needed to overcome the disease is shown by the fact that serum withdrawn from patients convalescing from pneumonia and injected into the system of other patients suffering from the disease produces a marked and rapid decline in all the symptoms.

Such cases have been reported by numerous observers.

In 1897 Washburn produced a serum and treated six cases with remarkable success. This was introduced into this country by Dr. Fanoni of New York.

More recently H. K. Mulford, who for several years past has been so largely engaged in the production of diphtheria anti-toxin, has undertaken the manufacture of pneumonia anti-toxin.

This I have recently tested very satisfactorily in the case of an old lady of eighty-four.

She was taken with a chill of moderate severity, and a sharp, stitchy pain in the left side, a cough with a little or no expectoration, temperature not over one hundred and pulse only slightly accelerated. Examination disclosed a distinct friction sound over an area not more than two inches in diameter. This inflammation in a few days extended to the lung, the crepitant rale was heard and a corresponding area of dullness detected upon percussion. The expectoration was viscid and rusty and microscopic examination showed the diplococcus present.

On the third day bronchial breathing and bronchophony with complete dullness were present over an area two or three inches in diameter, with a zone of crepitant rales around it.

I then injected twenty cc. of Mulford's pneumonia anti-toxin. In within thirty-six hours there was a marked improvement in all the symptoms and physical signs. Nor was there any further extension of the pneumonia inflammation.

The patient made a rapid recovery.

If the general introduction of pneumonia anti-toxin should have the same effect in reducing the percentage of mortality in pneumonia as diphtheria anti-toxin has had in diphtheria—and I believe it will—a great advance will have been made in increasing the longevity of the human race.

DISCUSSION.

DR. J. G. CECIL:

I am glad to hear this report from Doctor Wilson; it would appear to be a solution of a difficulty devoutly to be wished. It is one that has been brought up a number of times and has always proved delusive. I refer especially to the serum treatment of pneumonia. For many years I have been confident we would get it some day. I have had no experience with Mulford's serum, but shall be glad to try it when opportunity presents. Several times, as mentioned by the essayist, these serums have been exploited, but they all seem to have failed. I have felt confident for several years that it was in this direction that we might look for great things in the management of this unmanageable disease. I believe firmly that pneumonia is a germ disease, and that the toxines that are produced are responsible for many of the symptoms, and very often for the fatal ending of the disease, and I cannot help but think if we are to make any great progress in the treatment of pneumonia it is going to be along this line. I certainly hope and wish that we have come to the point now where we can say that we have a serum which will help us in the management of pneumonia.

Many years ago the Klemperer Brothers introduced a serum which seemed to be efficient in the treatment of pneumonia, but for some reason it failed, lost ground, and nothing more is heard of it now. I am satisfied that the serum treatment of pneumonia is coming, if it is not already here. I am equally satisfied that it is the only treatment that we can ever claim to be in any sense curative of pneumonia. I believe all other treatments that have been in common use since medicine was a science are simply tentative or expectant.

DR. J. B. MARVIN:

I desire to say in the beginning that I am skeptical, and the very first sentence in the essay I take with a pinch of salt. I am very skeptical whether we should call this an inflammation. Certainly if it be an inflammation it does not follow the laws of inflammation in other parts of the body. Unless we get the idea clearly in our minds, that the lung has a dual circulation, one nutritive supplied from the left side of the heart through the bronchial arteries, the other functional supplied from the right side of the heart through the pulmonary artery, we will not have any idea of what really occurs there. In inflammation of any structure we have symptoms proportionate to the amount of inflammation, and

as the inflammation subsides the general symptoms subside. Every gentleman here who has ever seen a case of pneumonia knows there is no relative value between the amount of lung involved and the symptoms, and that when crisis occurs, there is no clearing up of the so-called inflamed portion of the lung.

I believe, Smith, in his article in the Twentieth Century Practice of Medicine, comes very near the truth when he states that in croupous pneumonia you have an invasion of the air cells by the pneumococci, a genuine culture takes place there, that these cultures grow in a fibrinous medium exuded from the functional capillaries generating a toxin that infects the general system; at the same time the walls proper of the air cells, the lung structure through which this other circulation (the nutritive) goes on, are not involved in the least, because if this were true, you would have gangrene and local destruction. But the circulation around the air vesicles themselves which nourish the lung proper is not involved in this process.

Next, I am skeptical in regard to another statement in the paper. On general grounds I grant it is true that most germs, or all germs as they occur, generate some other substance which is antagonistic to them, and will kill them in time, but numerous and repeated experiments with artificial cultures of the pneumococcus fail to show in the culture medium any strong or active soluble toxin. It is radically different in this respect from diphtheria or tetanus bacilli. The pneumococcus carries this poison within itself and very feebly eliminates it in the medium in which it grows. You may grant that in an infected animal or man, for instance, that as it grows it does liberate a toxin or anti-toxin, but there is no conclusive proof of it. Recent experiments contradict most emphatically Klemperer's original idea that the pneumococcus produces an anti-toxin serum. Its mode of action has not been determined. Recent experimenters have been trying to prove how it does act. One class say it acts as some of the other bactericidal or bacteriolytic sera do; another class follow Metchinoff and claim it acts as an excitant or irritant to the leucocytes enabling them to ingest and destroy the cocci that carry the poison. Wassermann claims that specific protective substances are formed in the bone marrow and thence distributed to the blood.

These are the latest teachings of bacteriologists and workers in the laboratory, and if they be true we have little ground for hope from the injection of the so-called serum. Build your castles in the air but be certain to build your foundations.

Pneumonia is certainly the most fatal of all the acute diseases that prevail in this country; in Chicago last year the deaths from this disease outnumbered those from consumption from all causes, and Osler, in his recent address, quotes from Bunyan and calls it "Captain of the Men of Death." If that be so, and it is certainly so, why have not we gotten more results from this form of treatment? Little is heard about the serum treatment of pneumonia at the present time, except an occasional waft from certain quarters. When the idea was first suggested I felt very much like Doctor Cecil, hoping that good results would follow, and am free to confess if I had pneumonia and Doctor Wilson came round with his Mulford's serum and Doctor Cecil or somebody else came with salt solution, I would take the salt solution every time and let Doctor Wilson hold his Mulford serum.

One other remark: Of course Doctor Wilson has not drawn any conclusions and does not mean to draw any; but in the case of the old lady who had symptoms of crisis after his injection of Mulford's serum, certainly nothing is proven except this, that she is a remarkable old lady because pneumonia is the easy way that terminates life in old people; most old persons who have it die, and it is about the pleasantest and easiest way they can be taken off. But she differed from the usual run of cases, the exception that proves the rule, and did not die. Again, how many people do you see with pneumonia that have symptoms of the crisis on the third or fifth day without any treatment beyond rest in bed? Generally the disease runs a longer course, and every one who has seen many cases has observed symptoms of the crisis and beginning improvement on the third day without a single thing having been used.

DR. WM. BAILEY:

Doctor Wilson of all the doctors I know, is the proper one to advocate this method of treating pneumonia; he is on the firing line all the time. I remember but a few years ago I disclaimed being an abortionist when he was aborting pneumonia in some way. But I am patting him on the back notwithstanding all this.

Like Doctor Cecil I am still looking, expecting, waiting and hoping that we are going to accomplish something along this line, because, as he expressed it, we have no other hope.

In regard to some points made by Doctor Marvin I want to speak: I do not believe that always the fever or the danger is in proportion to the amount of lung involved, and I have been inclined—although his statement that we do not have a toxin in these cases is rather against me—to attribute some of the cases that have bothered me, where I had a fatal termination in a fairly average man with only a small amount of lung involvement, I have tried to satisfy myself that the germs concerned in the process were capable of manufacturing more virulent toxin than usual, and that death came by virtue of the action of this toxin on vital organs, the heart, if you please, and that this was the source of death, because we know that we have two lines of danger in pneumonia, viz.: asthenia and apnea. In those cases of small involvement, leaving us one lung and perhaps one-half or three-quarters of the other, we ought not to have death from apnea; death in these cases is usually due to asthenia; we get death from apnea in broncho-pneumonia. I am inclined to think that it is not a symptomatic fever at any rate that we get in pneumonia.

Only a few years ago we had some interesting articles on this question, the first in opening our defenses in this work, was making the diagnosis of pneumonia, classifying one form as croupous and the other as catarrhal, and deciding that in croupous pneumonia we had what was known as an essential fever, fever not dependent upon the inflammation if it is such, because fever is not proportionate to the amount of lung involvement, not waiting for it, nor does the inflammation terminate upon termination of the fever. Consequently it is not a symptomatic fever, and in these latter days I have been inclined to regard it as a self-limited disease in that sense that the crisis comes on the fifth or the eighth day in croupous pneumonia, because toxemia has ceased, because the germs have ceased to manufacture poison. I am a little disappointed and do not

want to find out that this toxin is not generated by the germs, and that the germs themselves only do harm, because we know that in diphtheria the germs do not only manufacture toxin on the surface of the membrane but the toxin is carried into the general circulation. If we do not understand this matter now, I think we will understand it later, that by analogy we must of necessity determine that pneumonia is a specific disease due to a specific organism, and we must of necessity come to the management of it by means of something that is anti-toxic, something opposed to the poison produced by the germ, because this is the only line of treatment from which I can see any outcome.

Pneumonia is an exceedingly fatal disease. In our own city sometimes according to the death reports pneumonia carries off more people than does phthisis pulmonalis. It is one of the most fatal forms of disease. There are many things about it that we do not yet know much about. Even the manifestations of it are by no means constant. I have frequently seen cases of undoubted pneumonia where for three or four days I could find no involvement of the lung by the ordinary physical signs, and sometimes it is then difficult to make out accurately the diagnosis, still the symptomatology forces you to regard the case as one of pneumonia, and in such cases we have to make the diagnosis and treat the patient I suspect very much as did physicians before the days of auscultation and percussion. Pneumonia was known and recognized in those days. We can tell almost by looking at a man's face, by his method of respiration, etc., that he has pneumonia; occasionally three or four days pass before we can find any well-developed involvement of the lung. The subject is of the greatest importance to us, and I am free to confess that I would not be so incredulous as some others, and perhaps would be disposed to use this serum in a well developed case of pneumonia, for the reason I do not know what else I could do better than this, and knowing the good results following the administration of anti-toxin in diphtheria, and inasmuch as this is at least an analogous condition, I would be willing to make a trial. I hope Doctor Wilson will continue his investigations and that something tangible will eventuate.

I lost a woman to-day, aged eighty-seven, with pneumonia. She came home last Friday from a visit to Virginia, in usual health for her, and without any undue exposure, feeling perfectly well up to Sunday last, when in the evening she began to have aching pains with a little fever, and her temperature did not go above 100° F. at any time, sometimes 98° and 99° F. and at one or two observations it was down to 97° F. The temperature of people over eighty years of age is not a factor in making the diagnosis of pneumonia. These cases, as a rule, in my experience, go on and die. I have seen one case in consultation in the last two months, of broncho-pneumonia with extensive involvement of both lungs, at the age of eighty-three, one year younger than Doctor Wilson's case, and the patient is now sitting up convalescent. Meantime, though, she has spent over one hundred dollars for oxygen. There is a question along that line, with some of the authorities, as to the propriety of using oxygen in pneumonia. Whatever they may say about it, it appears to me to be rational, and the results, in my hands, have been such that I shall continue its use until otherwise convinced. There is something in making the patient comfortable, doing for him what he is spending his forces to do, that is, to get oxygen. I cannot for the life of me appreciate the argument that oxygen should not be administered to one who is not getting it; it may be that it makes some little more marked poisoning, elimination may be a little defective, but we must look to the elimination and give the patient all the oxygen he needs for the aeration of his blood. If I see a case of pneumonia, where the patient is fighting for oxygen, where the lips and finger nails are blue, I would give plenty of oxygen and cannot help believing that it is a rational thing to do. The main management outside of this, so far as we understand it, is to take care of the heart from the very beginning, and to nourish the patient; and I mean by nourishment the assimilation of food, the administration of proper substances for a patient in his condition, then in my hands strychnine is the best remedy that I know of to be administered.

DR. LOUIS FRANK:

I happened to be in Berlin at the time the Klemperer Brothers first made their experiments. If I remember correctly, they produced immunity by the introduction into animals of serum from a case of pleurisy which complicated pneumonia and which itself did not contain the bacillus. They also produced immunity by the introduction of sputum which had been warmed up to 50 or 60° C., and likewise with the introduction of a pneumococcus culture which had been warmed in the same way. I am sure at that time that in the numerous animals that were injected in this way the process was cut short. They had then used it in six or eight cases in the human being, and I believe in three or four of them with marked success, the crisis being brought about within a few hours and without recurring symptoms, the patients going on to rapid recovery after the injection of anti-toxin which they had prepared, some of it by injection into themselves.

What is it that produces the marked symptoms in those cases where we have metastatic abscesses with pneumonia if it is not toxin; further, what is it that produces the virulent pneumonia we see following the grippe; are these due to the pneumococcus or some other organism? In other words, are any other organisms capable of producing such a condition of the lung as pneumonia?

In Doctor Wilson's case it is not clearly shown that the injection of anti-toxin brought about the crisis; the data are not sufficient upon which to state positively that this was the case.

DR. R. T. YOE:

I have not had any experience with the serum referred to by Dr. Wilson, but hope in the near future to have an opportunity of trying it. I have hopes that this serum will prove as successful as diphtheria serum.

I wish to differ most decidedly with Doctor Marvin in speaking of the lung tissue. I think we do have an inflammatory condition which gives us dullness that we detect upon percussion. I have seen several post mortems where patients died of pneumonia and solidified masses were found, which I think proves that we have stagnation of the blood, the blood is not able to pass through the lung tissue.

DR. J. B. MARVIN:

All authorities, so far as I know, with but few exceptions, state that there is an inflammation of the lung

in croupous pneumonia, so Doctor Wilson is in very good company. I made my previous statements as an expression of my personal belief.

In regard to Doctor Yoe's statement; he is away off his base because he did not catch the very point I made. If the solidification was in the area which nourished the lung tissue itself, of course there would of necessity be gangrene and destruction if the case lasted but a short time. The consolidation found on post mortem is due to the exudation, etc., into the air vesicles; the lung tissues and the nutritive circulation are not involved in the process.

In regard to Doctor Frank's questions: The statement has been made very recently that in the culture of the pneumococcus we find no active or strong toxin, that the poison is cellular and when you get the poison symptoms you certainly have introduced the coccus itself, broken down, degenerated or disintegrated, so that the poison is set free. I do not mean to intimate that you cannot take this culture and have it in sufficient virulence to kill an animal; nor do I mean to say that you cannot by introducing an attenuated or diminished dose produce symptoms in that animal where he would be immune to a previous fatal dose of the toxin. Klemperer's experiments that far have not been disproved, it simply hinged upon whether the pneumococcus was analogous in its action to the diphtheria bacillus—but it is not. You certainly have two forms of the pneumococcus, one comparatively harmless, the other virulent, because in the sputum of a large percentage of healthy people pneumococcus may be found, and in those instances no effect is produced. Then you may find for some reason or other, change in temperature, culture or something else, the germ becomes malignant. That would serve to explain some of the cases mentioned by Doctor Bailey. The fact must be borne in mind that while croupous pneumonia is manifestly a specific, self-limited, and will terminate in death or crisis in most cases within a certain period, yet in other instances you may have a general invasion of the system without any of the local manifestations in the lung. The germ is exceedingly protean in its manifestations. You may find it in the meninges, in the endocardium, in the pleura, etc.; you may have a general acute invasion by this organism without local manifestation in the lung, as you may have a general typhoid invasion without gut lesions. While I believe it is true that croupous pneumonia is due to this organism, yet you may have it associated with erysipelas, with typhoid fever, with diphtheria, with influenza, and many times it is modified pneumonia, a mixed infection. It is in these cases that we sometimes cannot make out the physical signs for some time after appearance of the rational symptoms. I believe the most frequent mixed infection is pneumonia and influenza; the influenza bacillus in connection with the pneumococcus causes a very ugly and treacherous form of pneumonia. The mortality from pneumonia in this city has been much larger since we have been having so many grippal troubles and so much diphtheria, and there you have a dual, or, perhaps, triple infection to fight, and that complicates still more the possibility of serum treatment.

Then there is another thing which we ought to bear in mind, viz.: that there is such a thing as terminal pneumonia, a pneumonia which comes on as an intercurrent disease or closing chapter in many diseases, and the pictures there are a little different.

DR. F. C. WILSON:

I did not intend in the paper to cover much ground, but simply desired to call attention to the anti-toxin serum, the method of using it, and indicate where it could be obtained.

In the case reported I dwelt more particularly upon the arrest of extension. It is a well-known fact where croupous pneumonia commences in a lobe, in nine times out of ten it involves the entire lobe, it is limited only by the dividing curtains between the neighboring lobes. In this case I could clearly define the area involved in the lung, and it was in the active process of extension at the time this serum was used, and after its use there was not a particle of additional lung involved, and this convinced me more as to the utility of it than any other feature I saw in the case. The patient's temperature was not high at any time, perhaps not over 102° F. during the course of pneumonia, and within the next twenty-four or thirty-six hours after administration of the serum the temperature dropped down to normal; expectoration the first twelve hours seemed to be increased, after that it decreased and changed in character.

In reference to the other serum, Roberts-Hawley lymph that I have used occasionally which contains nuclein and spermine, I have continued to use it and have gotten some good results.

This reminds me of one case I treated in this manner, where a patient had tuberculosis and an intercurrent attack of pneumonia. I never saw a patient pass through an attack of pneumonia more comfortably than this one did. The patient having tuberculosis developed pneumonia while under treatment with the lymph, passing through the course of pneumonia to recovery with great satisfaction. I attributed much of the favorable course to the fact that the patient had been for some time under the lymph treatment for tuberculosis.

I am satisfied that the future will show much to be accomplished by the serum treatment of pneumonia, and I hope if any of the members of this society make use of it they will kindly let me have the benefit of their notes, because I may bring the subject up again at some future time. I would like, at any rate, to investigate it thoroughly and would appreciate it if others who make use of the serum would give me the benefit of their experiences.

A highly-important scientific congress has been arranged to take place during the coming summer. In 1901 a great international association, to deal with tuberculosis was founded, Professor Brouardel being nominated president, and all the European countries supporting the association being represented by from two to ten delegates, in proportion to their population. This international committee, the most representative gathering of the scientific men of the world who are now fighting against consumption, will assemble in May, 1904, at Copenhagen. The Danish capital has been chosen, no doubt, on account of the earnest way in which it is organizing sanatoria throughout the country in connection with this great work.

TOLERATION IN MEDICAL OPINION AND PRACTICE.

BY DAVID ALLYN GORTON, M. D., BROOKLYN, N. Y.

TOLERATION of opinion is necessary to brotherly unity; but its perfect attainment is realizable only among equals. It is the outgrowth of civil and religious liberty which mankind have suffered immeasurable pains to attain and secure. It would seem like taking a step backward to set bounds to its extension, or to limit its operation. Suffering in the cause of liberty of opinion is known even to the present generation; and many of the previous generation remember how bitter was the persecution which they endured for the sake of intellectual conviction and the courage to act upon such a conviction in the practical affairs of life. It hardly seems becoming of one of this number, who has conquered toleration for himself, to make an argument in favor of abridging it in others. But that is the purpose of this paper.

"In all things Charity," is an old maxim, but in the progress of events the time is coming, yea, has already come, when it must be modified to read, "In most things Charity." So far as the original maxim applies to convictions and opinions, I would let it stand; but when in practice it is inimical to the public welfare, to good morals, to health, and to life, it must be restricted. Its moral and religious bearings I will not dwell upon in this connection, but confine myself to the making of a few observations on the medical aspects of Toleration.

Within living memory a fierce fight was waged in the medical profession against venesection in fevers and inflammation, as a procedure which complicated convalescence, to put it mildly. My preceptor invariably took a pint of blood from the arm of an adult pneumonia case, repeating it from time to time as he thought the occasion required, with almost uniform fatal results. I have known venesection practised in puerperal fever with always fatal results. Physicians of that day divided on such a procedure, the opponents of it claiming that it was irrational in conception and murderous in practice. They could not tolerate it for such reasons. And they were right. Their protestations were directed in the interest of common sense and humanity.

Again, there rose a fight against the use of five and ten grain doses of calomel in our ordinary gastric fever, at that time regarded as a bilious fever—and falsely so. Calomel was pushed to such extremes as to produce salivation, a phenomenon unknown, happily, to the medical student of this generation. The rule was to watch the gums of a patient under a mercurial course, and to discontinue the mercury as soon as the blue line at the edge of the gums appeared. But that was too late in many cases to prevent salivation, as some were more sensitive to the drug than others. Such as recovered from gastric fever—specific or non-specific, in the nomenclature of to-day—did so with the loosening or loss of their teeth, and an attack of mercurial rheumatism, an irremediable ailment. The opponents of this practice said that "a mild mercurial course was like mildly cutting a man's throat." These mal-effects of treatment led to the assumption, wth more or less plausibility—*less* plausibility, I believed—that they were due to the too free use of water in the treatment of such fevers, especially when mercury was freely used. Hence, water was prohibited, and not only in fevers but in pneumonia and inflammations in general. It was thus that one evil in practice necessitated another. What the poor patient suffered in consequence few remain to-day to tell the tale. The present writer is one of that few, having been fortunate enough to live through an attack of pneumonia when a boy of four years, under the so-called regular practice. The scars of the blister and bloodletting I still wear. The agony I endured for the want of a drink of cold water I still remember. In my fitful sleep I roamed the forests in search of water, and oft did I quench my ardent thirst at some cooling stream and woke to find it but a dream. Ah, God! I shall never forget the agony of my thirst! It was nature's—beneficent nature's call for the great need of the system. It was a demand on the part of nature to supply the blood with the aquae sanguinis liquor, or its very life any pabulum which had been so greatly depleted by fever and inflammation. The researches of to-day show that water, pure cold water, is more important to the well being of a fever-stricken patient than all the agencies of the pharmacopoeia put together. Nature vehemently protested against its being withheld, until finally certain members of the profession took the side of nature and protested, too, which was another cause of dissension in its ranks and division into sects. Was not such a practice a just cause of intolerance? The vast majority of physicians of all the medical sects do now agree that it was an occasion for intolerance; a nd there are licensed physicians to-day that still hold to the prejudice against water—even in fevers. It would be a grievous wrong against light, against humanity, for one to tolerate a return on the part of physicians to such a barbarous and benighted method of practice.

The element of water is so important in all cases of infectious fevers, of which typhoid is chiefest, that I must dwell upon it a moment here, especially since its importance does not appear to be generally recognized. During the process of elimination of the infection set up by nature through the kidneys, skin and the bowels (by diarrhoea), the water of the blood becomes depleted, and congestions and blood stasis the more imminent, This loss can be made up only bv water and liquid nutrients. Should such loss not be made up, there is danger of blood asphyxiation, stasis, and death from sepsis. The urgency of water is increased when wasting hemorrhages occur in the bowels, which are often, I may say, generally, in evidence. I have given in critical cases of this kind as much as four quarts of sterilized water in twenty-four hours, withholding other nutrients altogether, and had the pleasure of seeing convalescence assured, even in the extremest cases. One such case was reported by me in "The New York Medical Times" several years since, under the caption "Notes on Typhoid Fever," in which, after an exhaustive haemorrhage, two ounces of cold water were exhibited every fifteen minutes for twelve hours, at the end of which there returned a flickering of the pulse at the wrist and final recovery.

There is much in the fads connected with the care and treatment of the sick to-day that is foreign to an enlightened sense, and ought not to be tolerated—especially *not* in critical cases. Among them I have to mention "Christian Science," "Mental Healing," "Osteopathy," and Hahnemannian Homeopathy. Not that there is not good in them all, for I know that there is. It cannot be doubted that the prayer of the righteous availeth much; nor that an earnest magnetic soul, fixing the attention of the patient on a simple "remedy," exerts

a strong influence upon the conservative forces of such sick and credulous persons that is wholesome and sanitary. Science calls such influence Suggestive therapeutics; but whatever be the name that to it is given, it should be recognized as *mental* and entitled to respect—within its sphere—and not tolerated out of its sphere. The practice of these specialists needs to be supervised by the civic power, and limited to cases to which they are adapted. There are some things demonstrable in medicine the truth of which should be enforced where human life is at stake. All such truths should be respected by all physicians and others that have the care of the sick, and such respect should be made obligatory upon them. I would not tolerate, for example, a physician who would treat cancer or diphtheria by prayer, nor quinsy by bone-manipulation; nor typhoid fever exclusively with the extreme infinitesimals of a supposed specific for that malady, when it is demonstrated that there exists no specific for it. Should measures of asepsis outside and inside be resorted to in infectious diseases and water freely and judiciously used, and other measures adopted which the progress of medical enlightenment has shown to be necessary and essential in such cases, the fads may be passed over and tolerated as placebos. It is one of the anomalies of human nature on its present plane of development, that it will adopt beliefs without data or proofs—often in spite of them. Emerson says "A man bears beliefs as a tree bears apples," and it is true. I have known reputable homeopaths to boast of curing typhoid fever with an occasional dose of the 5000 of Bryonia! A learned and scholarly homeopath of my acquaintance, now dead, told me that a most painful and persistent ingrowing toe-nail on his own foot was cured promptly by a few doses of rhus tox. of a high dilution, prescribed by the late celebrated von Bœninghausen, of Berlin. Another physician of distinguished repute of the same school of practice, told me that he had cured malignant pustule with infinitesimal doses of the virus of the viper—lachesis. He boldly asserted that he had repeatedly cured diphtheria with the use of homoeopathic infinitesimals alone; and that he had never lost a case of that dire malady under such practice! He was then an old man, having been in active practice in this city for a half century.

I mention these as illustrations to indicate where the line should be drawn between tolerance and intolerance in the practice of medicine or the treatment of the sick. If the practitioners of fads and specialisms do not know where to draw the line, they should be instructed—taught, by argument, if possible, by legal measures, if necessary. Health boards, instituted to watch over the life and health of the community and to guard it against the intrusion of infection, should have authority in all cases of germinal or infectious diseases to see to it that the victim has the benefit of such aids as science commands. They should not wait until the victim dies, and then proceed to prosecute the undiplomaed "healer" and "physician," and depend on an ignorant and sympathetic jury for a verdict, but proceed at the outset to secure for such infected person the essentials of rational care and treatment.

I am aware that this would be a breach of civil and religious liberty, especially of civil liberty. But it is justified by the modern code of jurisprudence, which makes it a criminal offense to kill one's self, or to endanger the lives of others. Even the contractor who, by negligence, causes the death or injury of his employes is held criminally guilty. How much more, then, is the physician criminally guilty of being an accomplice in causing death, who fails to call to his aid in critical and infectious cases of malady, the measures which science shows to be essential, or indispensable, to life? The law protects—or at least, is supposed to protect—the public against bunco-steerers and cheats, promoters, swindlers, venders of unmoral literature, freedom of speech and the press, when such freedom is prejudicial to individual or public safety, etc., and to punish those that obtain money by false pretenses; let it enlarge its scope and include the charlatans, diplomaed and undiplomaed, that prey on the confiding, infirm and credulous for selfish profit. Whom should the law protect against cupidity if it is not such as these?

THE ETIOLOGY OF TUBERCULOSIS.

BY JOHN B. HUBER, A.M., M.D., NEW YORK CITY.

THE bacillus of Koch is, of course, the essential or specific cause of tuberculosis. But stress should not be laid upon this factor to such an extent that consideration of other factors may be lost sight of. The tubercle bacillus is after all but an index of the disease consumption, which is the resultant of many factors. The advanced consumptive emits in coughing several billions of the bacillus during twenty-four hours. The healthy individual breathes in countless bacilli, and he no doubt ingests many with his food. Yet, because of the adequate germicidal properties which are inherent in the normal organism, no harm results. When, however, the body is predisposed by such factors as a vicious heredity, inordinate alcoholism, poverty (and all that this word implies), trades which are inimical to health and the like, a lowered tissue resistance results, so that the bacillus and its allied micro-organisms may easily propagate within the organism.

The scrofulosis of infancy is most important to consider with relation to tuberculosis. Infants manifesting this condition are not chubby and they do not have the rosy skin characteristic of health at this period; instead they have a pallid skin and flabby flesh. They are likely to be thin and weazened. They are prone to catarrhs of mucous membranes, as evidenced in the eyelids and by coryza and congested and unhealthy throats. There is in such infants a sluggish and torpid metabolism.

Scrofulous children, as they grow older, manifest persistent swellings in the glands of the neck and develop adenoids and hypertrophied tonsils. Upon such abnormal tissue the bacillus easily finds a nidus. Besides, such children are mouth-breathers, and are continually starved for oxygen. Thus is respiration impeded. And by respiration here we refer not only to the act which is made up of inspiration and expiration, but, in the broader sense, to oxygen conveyance by the arteries and capillaries to the furthermost tissues. Such deficient respiration results in perverted metabolism, a condition ideal for microbic propagation.

We find, furthermore, in strumous children, malformations of the thorax, narrow cheeks, "chicken-breasts," projecting shoulder-blades and small respiratory muscles. There is also slow teething and deficient ossification in general.

"Bone-tuberculosis" may manifest itself, beginning

in latent force, so that hip disease, white swellings of the joints and spinal caries appear. Many a child properly nurtured and well-reared might escape such affections.

It is good to see how efforts are being made in this country to counteract this "scrofulous temperament," with which such children are born. There are now several hospitals in New York State alone devoted to the care of "tuberculous" children, many of whom are no doubt only scrofulous. The French Government has been, I believe, the pioneer in this movement. There are a number of French hospitals at Berck-sur-Mer, at Hendaye, at Ormesson and other places, in which such sick children are vouchsafed eradication of their nasal and other structural abnormalities, are treated by excellent physicians and are taken care of by devoted nurses. And they have the very best of simple, nutritious food, such as bread stuffs, eggs, milk and meat; and are, as much as possible, in the fresh air and in the blessed sunlight. At Berck-sur-Mer, for instance, there are cars so arranged that the beds, with the tuberculous children lying in them, can be transferred to the beach; and thus these children breathe all day the beneficent sea air. Thus do many of them who would otherwise die untimely, grow up strong and virile instead, inculcating in others the lessons of hygiene and cleanliness which they have learned, and amply repaying the state by becoming devoted and patriotic citizens. Truly, this is a matter worthy the consideration of our politicians.

I have thus in this brief paper indicated a few predispositions to tuberculosis. It were impossible even to mention all such. Many of them are so subtle that they escape detection and so are never taken into account. Indeed, living, in the ordinary sense, is in large measure but the body's response to environmental influences, either physical or chemical in character; and these are about as numerous as are external phenomena. Severally such influences are beneficent and wholesome, the result being the condition of the individual which we term health. Too often, however, they are baneful in their effects; in consequence of which the body becomes receptive to such infectieon as this of tuberculosis.

In conclusion, it is necessary to observe that one must not lose sight of the fact that tuberculosis is an infection and that such preventive measures as registration, disinfection, the disposition of sputum and the rejection of tuberculous food-stuffs are of the utmost importance.

It is a well-known fact that a child ill with pleurisy prefers to lie upon the afflicted side. Kelley has observed that with the accumulation of fluid the child almost invariably prefers to turn and lie upon the back or to be propped up high in bed. He regards this instinctive changing of position as a sign of effusion, probably of considerable bulk.

The Chinese National intoxicant is named Chansin. It is obtained principally from a herb called Gaolyan, which is grown on almost every peasant's land in Manchuria, being used partly for cattle food. Chansin is not uniform in spirit contents, but may be taken to be about 150 per cent. stronger than Russian vodka, and being prepared in very old-fashioned apparatus. Poisonous impurities are often present in appreciable quantities.

ADVANCES IN MALARIAL AND OTHER FEVERS.

BY HENRY TAYLOR, M. D.

THE public is really growing well trained in medical matters nowadays. In fact, it is a question whether they have not been taken too fully into the confidences of our medical chiefs. The public jumps to extremes; a suggestion quickly becomes exaggerated and the public gets a mass of undigested data into its mind. It looks at the moment as if it was becoming too alarmed on the tuberculosis question after having slumbered in ignorance for centuries. Again, the breakfast food people are working this phase to death; semi-medical terms are tacked on foods and it is necessary to make them a suggestion. "Wheat flakes" goes no longer; to be a success it must be "power," or "energy," or some such stimulating term.

However, in malaria it is hard to see how the people of our good globe can get too energetic, for the field is large. Already engineers are taking up the question and "mosquito engineering" is now a term understood by all. There are great commercial profits to be obtained from the reclamation of great regions of rich swamp land now the home for breeding mosquitoes. A conference was held in New York City on December 16, 1903, to study the mosquito problem. A national organization, permanent in character, will probably be formed to fight the nuisance.

As a result other diseases have been studied to see what relation they bear to the mosquito problem. Reed studied so-called mountain fever and came to the following conclusions: In the majority of cases of mountain fever the Widal test is negative; the duration of mountain fever is shorter than typhoid fever; the exciting cause does not seem to be Eberth's bacillus; the exacerbations are not like malaria or typhoid fever and the eruption has a spotty feeling, raised in character, does not disappear on pressure, and covers the whole body.

Malta fever is another curious and interesting disease: we are not yet clear as to its position in the medical world. Bruce has studied it and so has the English School for Tropical Diseases. It has been reported in the Philippines and also in cases from Porto Rico. Curry reported in 1901 four cases from the Army and Navy General Hospital at Hot Springs, Arkansas. They were all patients from the service in the Philippines. Sweating, anemia and constipation were prominent, and the cases had been diagnosed as chronic rheumatism. It was diagnosed by the serum reaction with the germ; formerly it was regarded as an obscure or chronic form of malaria.

Yet in malaria our recent discoveries have not yet modified our treatment to any great extent. I will give my treatment of malaria, which experience has taught me is simplest and best.

We knew in years gone by remarkably little regarding the life of the plasmodium of malaria outside of the human body; we know that this low form of animal life requires for its existence heat, moisture, and decomposing vegetation and that malaria is usually found under these circumstances; but we know little more excepting that naturally, therefore, this disease is most prevalent in our Southern States, especially those bordering on the Gulf of Mexico. Here the disease often is a serious problem, attended by hemorrhages from the kidneys or intestines or by coma, and is not infrequently fatal in the third paroxysm; occasionally, even in the first:

while the malarial poison is so prevalent that it frequently complicates other diseases. Malaria is not uncommon in northern cities, but it is steadily diminishing, so that many of the cases that present themselves for treatment import the poison from distant localities. The commonest forms are the tertian, the double tertian and the aestivo-autumnal, while in a large series of cases observed in the hospitals no example of the quartan variety is recorded.

Malarial intoxication is most apt to occur early in the morning, or during twilight, or the early hours of the evening, especially when the air contains much moisture, so that avoidance of exposure during these hours is excellent. Roman observers show that the poison tends to remain near the surface, so that those living upon the first floor suffer. It is difficult to cure a patient suffering from this disease if he continues living in a malarial district, for the reason that although he may recover from the attack from which he is suffering, he is constantly exposed to the risk of reinfection, as one attack of this disease does not protect from another; so malarial subjects should be advised to seek a climate that is non-malarial in character. The first case to which I shall cal attention was admitted with a temperature of 103° F. which descended to 97° F., followed by a second paroxysm on the following day. The blood showed the usual forms of the parasite that are observed in tertian intermittent malarial fever, and, as the paroxysms occurred daily, a diagnosis of double tertian intermittent malarial fever followed. No medical treatment of a malarial nature was tried and yet no further paroxysms occurred; the removal from malarial surroundings to a locality free from this poison, together with a naturally strong resistance to the disease, enabled this patient to overcome a mild grade of malarial poisoning without medical aid, for undoubtedly only a small number of the parasites gained access to the blood.

I remember another case which received no treatment, and, although the malarial parasites were present in the blood in small numbers, later examinations showed their absence, and he was discharged without having received direct treatment for malaria. The typical symptoms of a malarial paroxysm chill, fever and sweat, occurred on alternate days, and the blood contained the malarial body characteristic of tertian intermittent fever. This patient claims to have had numerous attacks before admission, and that she has had malarial fever on and off for some years. Since then she has improved markedly; she was directed to take five grains of sulphate of quinine, five drops of Fowler's solution, and two Flint's pills every four hours. The following day the temperature was reduced to 96°, and no subsequent paroxysm occurred. On the third day she complained of gastric disturbance, nausea, loss of appetite, and a sensation of weight and distress in the gastric region, unaccompanied by vomiting. The haematokrit showed that the blood contained sixty per cent. by volume of red blood-cells, and that, therefore, there was a loss of forty per cent. Fleischl's haemometer recorded forty per cent. of haemoglobin, a reduction of sixty per cent. These results also reveal that there was a greater reduction in the amount of haemoglobin than in the quantity of red blood-cells, and that each existing red corpuscle contained twenty per cent. less haemoglobin than normal. Eight days after this observation the red blood-corpuscles had risen to seventy per cent., a gain of ten per cent., and the haemoglobin to fifty-eight per cent., a gain of eighteen per cent. The clinical symptoms correspond for there was the same improvement that occurred under the influence of quinine and iron, and she states that subjectively she is much improved. Recovery will be slow, because of the profound impress made upon her health by the long continuance of the malarial intoxication. A few days later a thorough examination of the blood failed to demonstrate the plasmodium, and probably she has been relieved of the disease for which she sought relief, and that she is at present suffering from the effects of the malarial poisoning. The quinine has been reduced to twelve grains daily and the iron has been continued, and we shall resume the arsenic in gradually increasing quantities. Her diet should be mixed in character and nourishing, and her condition carefully watched.

In double tertian fever, the paroxysms are characteristic, and the diagnosis is strengthened by the discovery of the plasmodium in the blood; here give the same treatment as that prescribed for the first patient. Our patient was suffering from a very severe paroxysm, hence to control it, a hypodermic injection of five grains of bisulphate of quinine was given four times in different portions of the body, making twenty grains altogether. The temperature fell but slowly, and did not reach 99° F. until the evening; while the time of the chill was coincident with the breaking up of the mature pigmented malarial bodies into small spherical masses of protoplasm, which quickly attach themselves to and enter the red blood-cells. At the same time a considerable quantity of poisonous materials, probably chemical in nature, is thrown into the circulation, which is probably the chief cause of the chill, fever and sweat, the typical symptoms in such a paroxysm.

The quinine which was administered, one hour after the chill, circulates in the blood too late to prevent this poisoning of the blood, and the malarial parasites within the red blood-cell were protected from its local influence in this way. This is the reason why this paroxysm was uninfluenced by twenty grains of quinine injected subcutaneously; on the following day the temperature rose to 100° F., but later remained normal. Then the patient was placed upon five grains of sulphate of quinine, five drops of Fowler's solution, and two Flint's pills every four hours. The first examination of the blood, made six days after admission to the hospital, showed that the red blood-corpuscles were reduced to sixty per cent. and the haemoglobin to fifty per cent., so that there was a loss of forty per cent. of red blood cells and fifty per cent. of haemoglobin, while the individual red blood-corpuscles contained ten per cent. less of haemoglobin than normal. After one week of this treatment there was an increase of five per cent. in the quantity of red blood-cells and fifteen per cent. of haemoglobin. This result is especially encouraging, as generally the loss of haemoglobin is recovered from more slowly than the decrease of the red blood-cells. The patient feels perfectly well and is anxious to get back to work.

The next case, as his attacks occurred upon alternate days, and the blood contained many malarial parasites, chiefly of the intra and extra-corpuscular variety, should be diagnosed as tertian intermittent fever. He has been taking fifteen grains of quinine, five drops of Fowler's solution, and two Flint's pills daily. He presented no elevation of temperature after the exhibition of these remedies, and an examination showed that there was sixty per cent. of red blood-cells and sixty per cent. of

haemoglobin. Five days later a second examination was made, showing that he had gained ten per cent. of red blood-cells. His haemoglobin had remained unchanged. No malarial parasite could be found in his blood.

A case reported some years ago is interesting for its results: this patient was suffering from double tertian intermittent fever; he was treated precisely as the cases already described, but with somewhat different results. After receiving his antiperiodic treatment his evening temperature rose to 103° F. The following day, in the afternoon, his temperature again rose to 103° F., after which time it remained normal. Here is an example in this series of patients that presented a modified paroxysm after receiving full doses of quinine, iron and arsenic. He feels well, and, as there has been no return of chill, fever or sweat, he desires to return to work. An examination of the blood, however, showed the presence of a large number of the pigmented malarial bodies, and, despite the absence of a paroxysm and the improvement in subjective symptoms, it shows that he is still suffering from malarial poison. Here we increased the quantity of quinine to thirty grains in the twenty-four hours, instead of twenty which he had been receiving, and at the expiration of twenty-four hours the pigmented malarial bodies were found, but their numbers were greatly decreased. In consequence the quinine was increased to forty grains in twenty-four hours, and the blood upon examination showed a large number of crescentic bodies, but none of the pigmented form. The last examination showed only one crescentic body after a careful search for twenty minutes, so that we may state that he has now almost recovered. Had he been permitted to leave the hospital with instructions to continue the antiperiodic treatment in gradually decreasing doses, as a result, owing to the continued absence of the malarial paroxysm and the improvement in the general health, in all probability the treatment would have been abandoned quickly. The specific effect of the antiperiodic being removed, the malarial parasites in the blood would have increased and multiplied more or less rapidly, until finally there would have been a sufficient number to bring about a slight irregular fever, or even a paroxysm of chill, fever and sweat. It is easy to see from the course of this case, how relapses occur. This case demonstrates the value of these blood examinations, not only diagnostically but also prognostically and therapeutically. The continued presence of Laveran's body proved that the quantity of quinine administered was totally insufficient, despite the lack of symptoms. The volume of red blood-cells was sixty per cent., which was increased only five per cent., and the haemoglobin has decreased five per cent., so that he is still suffering from the destructive effects upon the blood produced by an unusually severe malarial infection. In such cases cautiously decrease the quantity of quinine and continue the arsenic and iron in full doses.

Should the quinine fail to act there may be a variety of reasons; one is the hypothesis that this alkaloid was not able to act upon the parasite because of the protection offered by the red blood-cell which was acting as its host, or from the asserted fact that at this stage in the life history of the plasmodium it is least susceptible. It seemed also likely that much of the quinine was secreted in the course of a few hours, so that in its diluted form it was unable to destroy the mature parasite.

Frequently pills of quinine are old and hard, and are rejected from the stomach on some occasions, and others are found unchanged in the faecal discharges. In all these cases consider the question of absorption as well as the administration of quinine. Prescribe bisulphate of quinine in compressed tablets because of its greater solubility, and administer it after the patient has taken a small quantity of food. To further insure its solution and absorption recommend the addition of orange or lemon juice or of hydrochloric acid. A better plan would be to place the finely powdered bisulphate of quinine between hollow disks of the thickness of paper made from rice flour known as "cachets." These contain five grains of bisulphate of quinine, and when moistened are swallowed with ease, and the envelope is quickly digested, thus liberating the quinine in the stomach in the form of a fine powder, which permits of its ready absorption.

In the case of infants and very young children give a carefully made suppository administering the salts of quinine partially dissolved and held in suspension by substances intended to disguise the bitterness, such as syrup of yerba santa, etc. In cases of gastric irritability or vomiting, also, it is necessary to administer quinine by suppository or subcutaneously. The bisulphate of quinine has been used for this purpose, but the bichloride seems to be more soluble and less irritating. Quinine pills that have been made for some weeks or months, sugar-coated pills, old gelatine-coated pills, and quinine in capsules should be avoided because of the uncertainty as to their solution, and not infrequently the patients will have the same experience that was noted in the last case—the pills may be found in the intestinal discharge unchanged. Professor Binz believes that the bichloride of quinine would give better results than bisulphate of quinine. Arsenic should be given always in the form of Fowler's solution.

Physicians practising in Southern States have found that not infrequently typical cases of malaria resist quinine and yield to arsenic. Occasionally they meet with cases that are rebellious both to quinine and arsenic, under which circumstances they have obtained excellent results from the use of half-ounce doses of Warburg's tincture taken three times daily after eating. In patients suffering from gastric catarrh or the gastro-hepatic symptoms of lithæmia, it is often desirable to precede the specific treatment of malaria by a short course of broken doses of calomel or some similar preparation.

The United States Department of Agriculture have reported various insects, dangerous to health, besides the mosquito. The most interesting and important member of this group is the compsomyia macellaria or "screw worm fly." As far back as 1883, Dr. Snow reported a case in Kansas, in which he received specimens of the so-called screw worm and recorded one hundred full grown maggots from the nose of a patient. This patient had been affected by ozena with a foul nasal secretion which gave an attractive place for the deposition of the ova. This fly appears in early summer, especially in the South and in limited areas. They select some wound or decaying matter to deposit eggs, quickly, often three or four hundred in a few minutes, which hatch in a few hours. The maggot is quite active and burrows into the tissue and matures in six days. I quote from the government's report as follows:

"As the eggs which produce the screw-worms are deposited mainly in the nostrils, it would seem comparatively easy to assure prevention of the resulting disease. The experience of a clergyman in Kansas, however, shows that this problem of prophylaxis is not as simple

as it appears. The clergyman, while riding in his buggy in Texas, noticed this fly, the parent of the screw-worm, buzzing about him. It flew up into one of his nostrils and he blew it out; it then dashed up the other nostril and, without his knowing it, deposited a number of its eggs before he was able to expel it. He knew something of the nature of the fly, and yet did not for a moment think that there could be any danger from its presence for a few seconds in his nose. About three days later his nose became painful and swollen and its mucous membrane exquisitely tender. The pain became so great that he hastened to Austin, many miles away, to consult a physician. The inside of his mouth became sore and his soft palate was almost destroyed before the larvæ, over two hundred in number, were all expelled.

"As a rule, the fly finds its way into the noses of persons sleeping in the open air, and especially of those suffering from offensive nasal discharges. Where patients are suffering from such a condition, then, it is important, if the fly is known to exist in the neighborhood, that their sleeping-rooms should be properly protected by mosquito netting. If such persons sleep under the trees, a not uncommon practice in the afternoon in southern countries, they should be warned to arrange some protection over their faces.

"The case above mentioned shows how important it is that medical aid should be sought as soon as possible. A prompt syringing of the nasal passages with dilute carbolic acid (one part of acid and two hundred parts of water) is recommended to dislodge the eggs or to kill the worms. The physician will find the most effective treatment to be thoroughly cleansing of the nares under the best illumination possible. Every part of the nose must be carefully examined and all suspicious appearances thoroughly investigated.

"The favorite point of attack by the larvæ is the succulent tissue on the floor of the nostril immediately above the soft palate. As the worms set up acute irritation and inflammation, the field of view in this part of the nose, owing to the readiness with which the erectile tissue reacts to irritants makes it difficult to see the parasites."

So the mosquito is not our only source of trouble in the insect line.

One would think (says an exchange) that graduates of the great medical schools would get the best grades before State Medical Examining Boards; but such does not seem to be the case. In the reports of the California board, for example, there were two failures of students from the State University of Michigan, three from Rush Medical College, one from Bellevue Hospital Medical College, one from the University of the City of New York, one from the State University of Iowa, one from the University of Pennsylvania, and so on through a surprisingly large list. On the other hand some of the colleges often termed "second-class" or worse—like Barnes Medical College, of St. Louis, Baltimore Medical College, Kentucky School of Medicine, schools conducted by private enterprise rather than state aid or large university endowment—have no failure before the board. Indeed, as to grade several of the "private schools" (so much condemned by Dr. Frank Billings, of Chicago, in his address before the American Medical Association) stand higher than any university excepting Johns Hopkins.

THE NATURE AND TREATMENT OF VARICOSE VEINS.

BY G. R. JOHNSON, M. D.

NOWADAYS it is commonly accepted that there are two methods of the production of varicose veins; this condition may arise either from undue pressure of the blood within the veins or from impaired resistance of their walls. In the first condition there is generally found certain forms of heart disease affecting the right chambers, on the distal side of an obstruction in a vein, when collateral veins are required to carry on the circulation, the natural channel being obliterated or narrowed, also in the veins of a limb when the position is such that the force of gravity is acting against the flow the greater part of the time.

Under the head of the second condition which is the impaired resistance of the walls, we find enfeebled constitutions and the degeneracy of tissue due to advanced age or disease elsewhere. We see a typical instance of this in the dilated veins on the backs of the hands of aged people. Studying this question in detail we find that excessive dilation of the veins which go to make up the superior cava often follows from the insufficiency of the tricuspid valve; whenever this insufficiency exists a considerable portion of the systolic energy is expended in driving back the blood into the systemic venous circulation and the superior cava from the nearer corespondence of the axis of its opening. With the axis of the auriculo-ventricular opening, receives the larger share. With every contraction of the ventricle a direct distending force is exerted upon this vessel and its branches which they are not fitted anatomically to resist; under these circumstances the distended veins may reach an enormous size, and are seen to pulsate synchrously with the arteries. This distension is greatest in the neck, but affects also the veins of the chest and of the upper extremities. Whenever a vein is obstructed either by process taking place within it or by pressure from without, the distal portion is more or less dilated. Examples of this are seen in the closure of veins from plebitis and by the pressure of abdominal tumors or the gravid uterus. Under like conditions the tributary veins also, being forced to carry more than the normal amount of blood, become enlarged. This we see constantly in the dilated veins of the abdomen when the internal vessels are pressed upon by large dropsical effusions. In the erect posture the veins of the lower extremities are subject to a distending force proportioned to the height of the column of blood which they have to sustain. For short periods at a time the resistance of the walls is ordinarily sufficient to bear this pressure without yielding, but in persons whose occupation requires them to stand a considerable portion of each day, and especially in those past middle life, there is a gradual giving way, which results in increasing not only the diameter but the length of the vein. The dilation takes place irregularly, being greater at one point than at another, and in one place affecting the entire circumference of the vessel, while in another it produces a bulging on one side or even a pouch or diverticulum. Especially just above the valves in the veins of the lower extremities, where the diameter is naturally a little greater, the larger area gives rise to greater pressure, and more marked dilation results. Their breadth remaining the same, the valves are no longer able to reach across the vein, and the circulation is deprived of the aid which is their office to give. Instead of the column of blood being divided into a number of portions, each resting upon the valve beneath it, there

is now a continuous column which exerts its full static pressure. Dilation is thenceforth doubly rapid, and at the same time the vein is stretched longitudinally and becomes tortuous, thus adding another impediment to the circulation.

The nutrient vessels ramifying in the venous walls are pressed upon, and the nutrition of the several tunica is impaired. From this arises fatty or calcareous degeneration. Under these combined influences the walls often become so thinned that rupture take place. But it is rare that the blood is effused into the tissues surrounding the vein, for the outlying integument or mucous membrane, atrophied from the pressure of the vein beneath, usually gives way at the same time, affording a means of escape. Even bone is not capable of resisting the continuous pressure of an enlarged vein, but may be absorbed in the same way as is seen in the case of arterial aneurism.

The dilated vein may become thicker instead of thinner by addition to the outer tunic; here, probably, it is the result of a slow inflammatory process, to which varicose veins are peculiarly liable. The slow circulation, especially in pouched and tortuous veins, favors the formation of coagula which frequently close up the vein entirely, thus bringing about a spontaneous cure. Independently of this, there is a disposition to recovery when the cause is removed, and the vessel may, under favorable circumstances, regain its normal condition. If, however, the valves have atrophied, as they are apt to do after their efficiency has ceased, entire recovery is impossible. Oedema is apt to occur in connection with dilated veins if the impediment to the circulation is considerable. Chronic ulcers of the legs, accompanied by eczema, are a very common result of a varicose condition of the superficial veins of the lower limbs; and a permanent cure can seldom be effected unless the varicose condition is first removed. Dilation of the hemorrhoidal veins is an important factor in hemorrhoids. But it is far from constituting the disease, as was formerly supposed, the tumors being largely made up of dilated capillaries and hypertrophied connective tissue. In fact, in some of the worst forms of piles it is not possible to find any evidence of varicose veins in the extruded mass. Generally, however, these varicose veins are present, and may be distinguished as smooth blue or purple nodules. When a hypodermic needle is thrust into one of these, the point is felt to be in a free cavity, which immediately becomes filled with a solid coagulum when a few drops of a weak solution of carbolic acid are injected—an operation which usually effects a cure. Obstruction of the portal circulation predisposes to hemorrhoids; hence they are a frequent attendant upon diseases of the liver. The habitual presence of fecal accumulations in the rectum, pressing upon the veins, operates directly to impede the return circulation, while the straining at stool which accompanies this condition, greatly aggravates the difficulty. The treatment of external varicose veins belongs properly to the province of surgery, yet when the dilation can be traced to changes occurring in any of the internal organs, treatment should be directed to removing the cause or mitigating its effects. A constipated habit should be corrected and the hepatic circulation be promoted.

The presence of ascites will call for the use of diuretics or purgative or of the aspirator. In cases having cardiac origin much good may often be accomplished, for a time, by the judicious use of digitalis. In all cases advantage is to be taken of position to aid the circulation as far as possible. In the case of superficial veins the application of moderate and evenly distributed pressure is of much service.

Our treatment of varicose veins is not satisfactory. Our knowledge of its etiology is not complete, and our ideas as to its prophylaxis are by no means clear: firstly, we must learn to recognize the classes of people who are liable to the development of varicose veins, and by prophylaxis prevent the occurrence of the malady; then that we should invent new methods for its treatment. Varicose veins are due to an affection of the venous walls; it is a form of chronic phlebitis, which is considered to be dependent on constitutional dystrophy of the vascular walls, and this diathesis is attributed to the existence of a constitutional tendency that has been called "arthritism" in France. The study of a large number of cases of the disease, however, has convinced Delbet, professor of surgery at the University of Paris, that varicose veins of the leg are generally due to causes entirely different from those mentioned. Classify varicose veins of the lower extremity according to their location, and, in the great majority of cases, probably ninety-eight out of every hundred, the varicosities occur in the course of the distribution of the internal saphenous vein; some of them seem to run over into the region supplied by the external saphena, but this is only apparent, and is due to the fact that there exists in some people certain collateral branches or anastomoses which are more or less abnormal. Other varicose veins may be called atypical; belonging to the external saphenous and its branches, or at times to the superficial ischiatic veins, or to the superficial obturator veins, while ischiatic or obturator varicosities are practically always due to pregnancy. Some years ago, Delbet showed by experiment that the valves of a saphenous vein which appears to be entirely normal in size and thickness may be totally incompetent; by a series of observations he determined in what proportion of cases this incompetency exists. When the saphena is extensively dilated, its incompetence is easy to demonstrate: Trendelenburg's signs furnish positive proof. The demonstration is not so easy to make when the saphenous is of normal size, after a little exercise its incompetency can be determined by placing the finger upon a dilated vein while the patient stands erect. A sense of fulness is easily noticed showing that the pressure within the vessel is extreme. Demonstrations in the erect position are open to suspicion, because there are so many elements in the problem. Examine the patient lying down, after the varicose veins have been emptied by the elevation of the lower extremities; then put a rubber band around the thigh and another around the leg just above the union of the lower and middle thirds; draw these two bands moderately tight, sufficient always to stop the circulation in the subcutaneous veins. Having fixed the bands in position by two haemostatic forceps, stand the patient on his feet ,and wait for a moment in order to see if there does not exist some anastomosis through which the blood filters into the branches of the saphenous vein. Should the varicose veins refill in spite of the two bands, make the patient lie down again and reapply the lower band a little higher than before, for the venous anastomoses between the superficial and deep venous systems practically always occur in the lower third of the leg. When the superficial veins do not fill up again, no deep anastomosis of any importance exists and so there is no chance for a mistake.

Then the patient is put on his feet once more to remove the upper band, leaving the lower one in place. If now the varicosities refill, it is a sign that the valves of the saphena are incomplete. Whenever varicosities exist they always fill up. This was surprising to Delbet and led him to question the accuracy of the present teaching with regard to the valves in the saphenous vein.

In the cadaver it was seen that near the mouth of the saphena there exist one or two pairs of valves which are not only competent, but are so resistant that they maintain their position against a pressure of three litres of water. Clinically, it is invariably the rule that when varicosities exist the saphena and its valves are incompetent. In two hundred and thirty-two patients there was not a single exception. There are, of course, degrees of incompetency. In certain patients in whom the saphenous vein is dilated one can see as soon as the upper band is removed that the blood fills up the varicosities almost at once. When the saphenous is not dilated especially, the reflux of blood is not so rapid, the calibre of the vein not being sufficient to accommodate such a quantity of blood, and the filling of the varicosities is slower. They fill, however, from above downward, while, as it is well known, the blood circulating in the veins flows in the opposite direction, showing that the valves at the orifice are incompetent. In the normal condition the valves of the mouth of the saphenous are not only competent, but powerful; in all those affected with typical varicosities these valves have been rendered incompetent. Is this incompetency of the saphenous valves a cause or an effect of the varicose veins? Varicose veins begin in the leg and not in the thigh. In fifty-six out of my two hundred and thirty-two patients Delbet found the valves incompetent at a time when the trunk of the saphena in the thigh showed no trace of dilation. These facts prove beyond a doubt that the incompetence of the valves of the saphenous vein precedes the varicose dilations and is not caused by them. The constant concurrence of the two conditions show that there is between them some direct relationship of cause and effect; hence, if the valvular incompetence is not the effect, it must be the cause. How does the valvular incompetence produce the dilation of the veins? It seems clear that it is by permitting an increase of intravenous pressure. Whenever in a normal vein the pressure above a valve becomes greater than that below it, the valve is thrown back into the lumen of the vein, and, if it is competent, it supports the excessive pressure without allowing any reflux of blood; while below the valve then the circulation is stopped, but the pressure augments slightly. In order that it shall increase notably some cause must act upon the distal segment of the vein. There was no other possible causes for this additional pressure except the vis a tergo from the heart and muscular contraction.

The pressure in the distal end of the cut saphenous vein is six centimetres of mercury during muscular effort and that excessive energy must be put forth to cause it to rise to ten centimetres. When the valves are incompetent the case is quite different; pressure is transmitted from the large veins above without encountering any obstacle, so that the slightest increase thereof within the thoracic cavity or the abdomen is felt in the venous circulation all the way to the feet. During muscular effort the pressure in the saphenous vein rises to sixteen centimetres of mercury; during a violent effort it mounts as high as twenty-six centimetres. Bramann showed that the pressure in the neighborhood of an arteriovenous aneurism is no higher than this. In a case of axillary aneurism communicating with the vein the pressure in an anastomotic branch between the cephalic and basilic veins was scarcely more than ten centimetres of mercury. As is well known, arterio-venous aneurism, by causing excessive pressure upon the venous walls, dilates the veins. It is evident that the same mechanical conditions as exist in arteriovenous aneurism come into play when there is incompetency of the valves in the saphenous veins. The excessive pressure upon the walls of the veins produces the same effect as the presence of an aneurism. This shows why the standing position has so much effect upon the development of varicosities, and why they occur almost exclusively in the lower limbs. In the theory of a chronic inflammatory process —the so-called phlebitis—these mechanical factors in the etiology of varicose veins are not given their due importance. Varicose veins in the legs are due to incompetency in the valves of the external saphenous vein. The next question of importance is, what is the cause of this valvular incompetency? Clinical experience throws a great deal of light on this question. First, it is worthy of attention that unilateral varicosities are relatively frequent. During five months that Delbet had charge of the distribution of bandages in the public service of the city he distributed twenty-four hundred and thirty-five rubber stockings for varicose veins to fourteen hundred and sixty persons. Out of fourteen hundred and sixty patients there were four hundred and sixty-seven who suffered from varicosities on only one side. It is not uncommon to see individuals who have one leg covered with enormous varicose veins while the other is absolutely free from them or presents only a small trace of varicosis. This difference in the pathological conditions of the veins on the two sides of the body remains even to an advanced age, though the varices may have developed in early youth, sometimes between the ages of fifteen and twenty. This comparatively frequent one-sidedness does not accord well with the theory of vascular lesions dependent on some fault of systemic nutrition, or a diathesis. Moreover, it would be very strange if a lesion depending on a general pathological condition should be localized to one rather small segment of the venous system. With regard to other varicosities besides those which occur in the leg—varicocele, for instance, and hemorrhoids—the mechanical theory furnishes the best explanation. The influence of the erect position can be readily recognized in the development of both these forms of varicosities, which are besides influenced by variations of pressure consequent upon intra-abdominal pressure, muscular effort, and so forth.

One hundred and six patients were able to tell approximately at what age their varicosities began to develop—an extremely interesting point; classified in five-year groups, most of the varices began between the ages of fifteen and thirty years. The maximum was reached in the period from fifteen to twenty. In sixty-eight of the one hundred and six patients (about two-thirds of the cases) the varicose dilations began before thirty years of age. Were the varicosities due to diathesis, it would be surprising to find them developing most frequently before the thirtieth year of age, when nutrition is at its best. The occurrence of the greatest number of them between the ages of sixteen and twenty years which seems due to the fact that at this time men take up occupations as apprentices, book-keepers, clerks, and so-forth, that require them to be in erect positions

for long periods. When people have congenital weakness and tendency to incompetency of the valves of the saphenous vein, these are easily overtaxed at this time, and varicosities develop as a consequence. This explanation serves to show very well why it is that people who follow avocations requiring much standing—as clerks, cooks, footmen, waiters, etc., are especially liable to develop varicose veins in the leg. The histories of the patients show that the varicosities became prominent and developed rapidly shortly after much of such standing occupation was entered upon or while military service was being performed. In some cases the varicosities have appeared almost suddenly. These histories when collated seem to prove beyond doubt that the varicosities were due to a congenital weakness of the valves of the saphenous vein. Ordinary varicose veins of the leg are thus associated with the rare forms of varix that occur in other parts and are due to serious congenital malformation of the venous system. The latter usually accompany angiomas. As to the varicosities which develop later in life, and that may be spoken of as delayed or senile varicosities, it is not so easy to determine their exact cause. They are probably due to deterioration in the wear and tear of life of valves originally not overstrong. Must we conclude, then, that a constitutional dystrophy has nothing to do with the production of varicosities? There is no doubt that the general condition of the individual has great influence on the progress and extent of varicose development. With an equal valvular incompetence certain persons acquire in a few weeks a set of varices that actually deform their legs by the prominence of the enormous veins; others, because of their better nutrition, have at the end of many years only a few small varicose dilations. Congenital feebleness of the valves is one of the most common forms in which dystrophic conditions in ancestors are transmitted to descendants. This heredity serves to throw light on the important question of the prophylaxis of the disease. It is evident that in families in which varicosities are known to occur, attention should be directed not to the correction of a presumed arthritic condition, but to the choice of occupations in which the development of this annoying condition of the leg veins may be avoided. It is extremely difficult to relieve the symptoms of varicosis. An ounce of prevention is here worth a pound of cure, and the family physician should endeavor to save his patients from the influence of hereditary tendencies in the muscular system. Venous dilation such as occur in typical varicose veins are always of mechanical origin. Like the enlargements in arteriovenous aneurism, they are caused by excessive internal pressure, resulting from incompetency of the valves of the internal saphena, and this incompetency is usually due to congenital weakness of the saphenous valves.

The disrepute into which medical expert testimony has fallen in France has caused the French Minister of Public Instruction to issue a decree for the establishment of an institute of Forensic Medicine and Psychiatry in Paris. The institute, which is intended to provide special training and to grant a special diploma to those who wish to practice as expert medical witnesses in the law courts, will be under the direction of the dean of the medical faculty and the professors of forensic medicine and of psychological medicine. It is to be hoped the time is not far distant when similar training may be obtainable in this country.

Certain metallurgists in Germany have come to the conclusion that metals are capable of being infected with diseases. A leading scientist (Professor Heyn), has found that in the injury done to copper from overheating the metal is poisoned with what he calls copper protoxid, a disorder which causes sickness and structural weakness. Steel that has been poisoned by hydrogen is deteriorated until it becomes almost as brittle as glass. Another scientist has discovered a certain kind of tin pest which inhabits roofs. He found also that when the diseased metal was brought into contact with healthy tin the latter soon became infected and was finally destroyed.

Five among the most eminent scientists, essayists and poets of the early Victorian era—all of them afflicted with chronic and inveterate ill-health, varying in form, but claimed to have arisen, in every case, from one and the same cause, eye-strain—are the subjects of Dr. E. M. Gould's latest contribution to medical literature. He contends that simply fitting these illustrious invalids with spectacles would have removed the primary mal-adjustment, thereby at once restoring them to the full command and enjoyable use of their great faculties, and enabling them to surpass even the measure of what they actually achieved for the benefit of mankind. It is noticeable that all of them—Carlyle, Darwin, Huxley, De Quincey and Browning—managed to reach a good old age, while their mental productiveness lasted as long as is usual with the higher class of brain workers. In this respect, indeed, they compared favorably with Scott, Southey, and others of their earlier compeers, who were never suspected of heterophoria. *Prima facie,* therefore, the instances our author relies on are not perhaps very strongly confirmatory of his hypothesis. But his argument is both so ingenious in itself and so plausibly presented—fortified as it is by a thorough mastery of the scientific principles and biographic details involved—as to seem almost impossible of refutation by any ordinary disputant. In our opinion, what it chiefly needs is that kind of clinical evidence which alone is finally convincing, *the evidence of living contemporaries.* Surely, among existing leaders in the respective domains of science, art and letters, there must be (if Dr. Gould's pathologic view of the matter be correct) quite a number of sufferers from the remote effects of eye-strain, whose symptoms run parallel, or nearly so, with those of the men he has chosen as examples. Let these, or some of them, be sought out, and induced to place themselves under the most skillful and up-to-date ophthalmologic treatment. It may be presumed that, whatever the result, no objection would be raised to its publication. Directly authenticated testimony such as this would go much further toward establishing or disproving Dr. Gould's theory than any amount of reasoning based upon vague descriptions and complaints in the memoirs of dead-and-gone celebrities. What we require are first-hand statements of their condition "before" and "after," from distinguished individuals still in their intellectual prime.

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We aim above the mark to hit the mark. Every act hath some falsehood of exaggeration on it.

—EMERSON.

THE STUDY OF DIETETICS.

THE time has come when the study of rational dietetics is imperative by the physician who would succeed in the practice of medicine.

The public has become so enlightened in this line that in some instances, individuals may be found who possess a superior knowledge of the matter far beyond the physicians who attend them.

This is not as it should be, as it degrades the standing of the profession, and a change must be made in the methods of teaching so that students will be compelled to obtain a more practical knowledge of this vital subject.

It is one of the greatest problems in life to know how to properly nourish the human body, in health and in disease. The subject has not yet been mastered, by any means, although it has been studied from the beginning.

It is important to consider this subject from the standpoint of prophylaxis as well as from that of alimentotherapy, for the first duty of the physician is to prevent disease.

In our consideration, the cook, the palate, and the stomach are all concerned, and if we are to accomplish favorable results, all these factors must be completely under subjection. In the past, views as to food values have varied in the extreme, but now organic chemistry is guiding us to a rational comprehension of the utility of food and the requirements of the animal body. There is still a difference of opinion as to the articles to be selected from which to obtain the elements required.

With the advent of chemistry the office of food developed a scientific precision which was before unknown. The physiology of digestion should be thoroughly understood in the first place, the chemistry of foods and the relative digestibility should follow, then should come the practical application in health and in disease, not overlooking the chemical changes which take place in the food en route, while the study of proteids, fats, carbohydrates and salts must be made for the purpose of ascertaining their value as food and their place in the animal economy, he who stops at this point will make little headway in the practical part of the subject, viz., the application as required.

Our literature upon this vast subject is becoming most voluminous, and is worthy the attention of every practitioner.

It must be studied from all points of view, and with a level head, in order to avoid partiality, routine, and the creation of a fad. The mind must be satisfied in advance that there is no "royal road" and no single method that will suit every case. Prejudice should not enter the consideration. Some special diet may have saved many a life, but it will not save every one.

While the classification of foods according to their chemical composition is of great value, the clinician knows full well that it requires art to apply these facts in practice; in other words, articles of diet must be individualized just as drugs are, in order to suit the particular case.

The only fast rule that will hold good is the adaptation of food stuffs to individual idiosyncrasy on the principle that what is one man's food is another's poison. The absorption of digested food is much more than a physical process, it depends upon the activity of living cells.

Food will not serve its purpose if it is offensive for any reason.

The physician will find it worth his while, not only to investigate as to the articles of food to be prescribed, but to be sure that they are daintily and attractively presented. He should arrange the order in which they are to be given, so that the appetite may not tire.

One should possess a menu in these days so large that a diet-list may be made which will suit the most fastidious and avoid the possible monotony of any single article.

Most laymen, and some physicians, incorrectly suppose that fat taken as food reproduces itself in the animal body, and from fear of obesity oftentimes this excellent and useful article is improperly withheld. Its use in the strumous diathesis, and in wasting diseases, when it agrees, is well known, and cannot be emphasized too fully, for reasons generally understood.

Prejudice against any article of food is highly reprehensible, for each has its place, even the much abused sugar, but we must bear in mind that while a ration may be balanced by rule in the normal economy, it is quite another matter when the system has become abnormal through disease.

The study of the association of foods in health as well as in disease is not only fascinating, but extremely profitable to all concerned. A person without appetite may be induced to take the necessary nourishment if the attending physician is competent to suggest articles of diet

which appeal to the sense of taste, and this is a point not to be overlooked.

It is well to study the amount of proximate food-principles required in a given case, and compare the data furnished by actual experiment, but this should not be done too rigidly, there are so many factors in the individual that must be taken into account.

A profound dyspepsia has been cured by simply correcting faulty mastication. The man who bolts his meal and runs for the train is laying the foundation for a chronic indigestion, which cannot be relieved without first removing the cause, to say nothing of the danger to life from an acute attack. These are the patients who foolishly resort to digestives of various kinds, when rational treatment would be the removal of the cause.

The various forms of food, the methods and requirements of normal digestion, the influence of age and the adaptability of nutrition in the various diseases to which the human body is liable, are subjects to which volumes have been justly devoted, and to which we cannot urge attention too forcibly. It is not wise to urge too rigid a diet in any particular disease. We no longer absolutely discard meat in the nephritic, nor sugar in the diabetic patient.

The up-to-date therapeutist individualizes everything! The fact that pepsin requires an acid media for its activity, that both acids and alkalies are given indiscriminately at the expense of digestion, should not be forgotten—they are points of the utmost practical importance.

There are many details respecting the digestion of all classes of food that must be known before one can apply dietetics in a practical and successful manner. A consideration of these would take us beyond the province of this article, which is intended only to call the attention of our readers to some neglected truths in practical dietetics and to urge a more careful and extensive study along these lines.

EXIT THE CORONER.

THIS city is at last to be rid of the coroner system, greatly to the satisfaction of all except the politician. The change is to be gradual, the present coroners being allowed to serve out their respective terms of office, but no more can be elected. In their places the Mayor will appoint a "Medical Examiner" as each coroner goes out, and eventually there will be one Chief Examiner and seventeen assistants.

The Medical Examiner will investigate sudden deaths and report to the City Magistrates, who now have power of commitment, and the District Attorney is very properly associated as the legal officer in such case. The coroner has long been considered an obstacle rather than a helper in the administration of justice.

It seems rational that medical work should be performed by physicians, and the legal by lawyers, and this is what is aimed at in the new law.

THE COST OF MEDICAL EDUCATION.

OUR attention has been called to this subject by a complaint in an exchange that the increase of tuition charges at Columbia (Physicians and Surgeons,) has been increased from two hundred dollars to two hundred and fifty dollars per annum. Our contemporary sees in this change, an additional burden imposed upon the poor boy who wishes to study medicine.

The *Journal of the American Medical Association* has recently presented some interesting statistics, which have an indirect bearing upon the price of medical instruction. It estimates the practitioners of the United States at about 105,000, 95,000 of whom are regular. During 1902, a trifle over 1,400 deaths occurred in the ranks of the latter, showing that the medical profession stands better than has been supposed in regard to hygienic conditions. Various other statistics confirm these, and, for several years the annual increase of the profession by graduation has been not far from 5,000. The net increase of 3,600 would call for an increase in the total population of about 2,200.000. Meantime, the population is increasing by the excess of births over deaths, to the amount of about 1,300,000, and by immigration to the amount of about 1,000,000 annually. Thus, it is apparent, that, so far as the mere question of ratio is concerned, the over-supply of physicians is not increasing. But, from the economic standpoint, it is obvious that the million immigrants cannot pay their proportionate share of the support of the medical profession, nor will the public do so for them, at rates at all commensurate with those established for general practice, to say nothing of highly skilled and specialized services. Moreover, all statistics show that sanitary and hygienic improvements have a marked influence on diminishing sickness. Thus, while apparently, the condition of the medical profession is getting no worse, there is actually a gradual lessening of the demands for medical graduates, which has, as yet, received no recognition by the colleges and the candidates for medical licensure.

It requires no argument to show that the medical profession is overcrowded. There are many successful men who are overworked, and there are many unsuccessful ones who would be underworked if they were the only doctors in a town of ten thousand each, but the great majority of physicians are quite directly influenced by the law of supply and demand, and there is no question but that each average physician could take care of at least twice the population that now falls to his lot.

Thus, in a certain sense, raising the price of medical education, like anything else that shall make it harder to obtain a license to practice, is to be regarded favorably. On the other hand, this policy must not be carried too far. The right to compete, even when prices are moderate and competition is not needed, still belongs to American citizens, although it is threatened by the men

who are supposed to represent the laboring class.

It seems to us that the increase in price of medical tuition is not to be decided either by the desires of the poor boy who wants to get into the medical profession, or by the poor boy already in it who wants to get something out of it. The main point is: What does it cost to provide medical education? There are colleges which are money-making institutions, many others in which most of the faculty give their time for the pleasure of teaching and the advertising which they get, some in which, we are told, the faculty actually pay for this privilege. Comparatively few colleges not under state control are endowed, and, in cases in which endowments have been made, they have usually originated in the desire to establish a place for some favored physician, or in that of encouraging scientific research, or providing facilities for treating patients, rather than in the desire to cheapen the price of tuition. It is impossible to estimate accurately the cost of medical education in any particular institution, without detailed information regarding finances, but a rough estimate for a college of 500 would be about as follows:

Interest on realty investment of $100,000	$5,000
Insurance and repairs	1,500
Dissecting (75 cadavers a year)	750
Chemical laboratory, including interest, etc.	2,000
Bacteriologic and pathologic laboratories, etc.	2,000
Salaries for janitor, engineer, librarian, etc.	3,000
Salaries for teachers, estimated at 10 for full time	20,000
	$34,250

According to these figures, the cost per capita is about $75. But it will be noted that no allowance has been made for a sinking fund, none for incidentals, that the laboratory expenses have been set at a figure barely adequate for routine instruction, and that the salaries have been adjusted on the basis of large classes and mediocre teachers. No state institution could teach 500 students with such a force of instructors, nor could a larger staff of instructors be employed on any such basis, at fair rates for special lecture and laboratory courses. In one of our colleges, there is an instructor to every three students, but, of course, many of the positions are merely complimentary and involve little expenditure of time. However, if the more important positions were filled without cost, the various teachers who would be required to spend a considerable portion of their time in teaching could be obtained for $20,000, and, perhaps, for less, by an appeal to vanity and by offering inducements for the future. A state institution for 500 students could probably be conducted for $20,000 additional, under the conditions mentioned, bringing the cost of tuition a trifle over $100 per capita per annum. It is perfectly obvious that the employment of a faculty composed mainly of men with reputations, the liberal and almost necessary use of manual and clerical labor, the use of the laboratories for something more than the A, B, C of medical instruction, and any attempt to provide an imposing structure for college use, and to contribute to the comfort and tastes of students, would at least double each item.

There seems to be no question, then, but that a medical college of more than nominal good standing cannot be conducted on business principles except at an average tuition rate of at least $200, and that a state institution aiming to furnish only routine instruction, in accordance with present requirements, and to pay no more than running expenses, would have to charge $100, while a private institution, conducted honestly, but giving no more than the law required, and relying entirely upon indirect payment of its principal teachers, might perhaps reduce the price to $75. But, as institutions of the last class could scarcely reach an attendance of 500, the per capita cost would actually be over $100.

THE MEASUREMENTS OF SCIENCE.

DR. CARL SNYDER has demonstrated, in a magazine article, that the sensitiveness of all human organs seems very gross indeed, as compared with that of the implements of a present day laboratory. We think of the eye and the ear as marvels of mechanism. However, a photographic plate, coupled with a telescope, will discover millions of stars whose light the retina does not appreciate; and the microscope, with its revelations of the world of the infinitely small, evidences the comparative crudeness of the human sense of sight. The ear hears but little of what is going on about us. The microphone makes the tread of a fly sound like the tramp of cavalry. Our heat-sense is very vague; we cannot realize a difference of temperature beyond one-fifth of a degree. The barometer, however, an instrument 200,000 times as sensitive as the skin, will note a difference of a millionth of a degree. A galvanometer will flex its finger at the current generated by simply deforming a drop of mercury so as to press it out of a spherical shape into that of an egg. The amount of work done by a wink of the eye would equal 100 billions of the winks marked on the scale of a very delicate instrument; even this performance, however, is far surpassed by the "coherers" of Branly, of Paris, by which the Hertz waves of wireless telegraphy are caught in their pulsings through space. The range of impressions which we get from lifting an object is very small; an ordinary chemist's balance is some 20 million times as sensitive. The latter will weigh down the 200th part of a milligram.

Without such instruments as these we should know very little of the world about us. With them we have come to know a great deal. They make it evident that "our senses give us reports only of a comparatively small number of comparatively gross stimuli."

PROTOZOAL DISEASES—TRYPANOSOMIASIS.

THE fact has long been familiar that in nearly all tropical countries the genus of protozoa, classified as Trypanosoma—*i. e.*, body-borers—produces in its many varieties a considerable number of violent animal infections, among which those best known are surra and the tsétsé fly disease. Cases of surra in human beings have been reported by reliable observers. Upwards of eighty names have been used in different countries to designate the condition of trypanosomiasis to which all these infections belong. From a recent report on the general subject put forth by the Biological Laboratory of the Department of the Interior, we learn that in the Philippine Islands surra first made its appearance in 1901, since then the spread of the disease has been phenomenal. At the present time areas throughout the entire group of islands have been infected. The principal conclusions arrived at by the authors, Dr. W. E. Musgrave and Mr. M. T. Clegg, are as follows: The term trypanosomiasis should be used to designate all varieties of the infection as found in different animals. Vernacular names, with the exception of surra, should be discarded in most cases. The complete life cycle of the organism is as yet unknown, but it is supposed to occur entirely within the animal economy. Modes of transmission and infection are probably through wounded surfaces in which biting insects, flies and fleas are the principal agents. The animals serving as hosts for the perpetuation of the disease during the dry season vary in different countries. It is altogether to be doubted whether infection of pasture and water, and the transmission of trypanosomata through sound mucous membrane are possible. A clinical study of various diseases, among which surra, nagana, dourine and mal de caderas may be mentioned, formerly supposed to be distinct, shows that there is nothing sufficient to differentiate them. The morphological differences of the parasites producing them is not sufficient for classification. Hitherto prophylactic or curative serum has failed to give results, but some hope is entertained from this method of treatment in the future.

Sleeping sickness is the most fatal malady known to man, for it invariably kills. So far as known at present, the disease is not spreading very rapidly beyond the shores of Lake Nyanza, but seeing the rapidity of its spread in that district, and the havoc it has caused, there is no guarantee that it may not spread to other districts of East and Central Africa, and thereby threaten the inhabitants of the Valley of the Nile and the Red Sea littoral. In the cerebro-spinal fluid of persons suffering from sleeping-sickness has been found a trypanosoma parasite which is regarded as the cause of the disease, its carrier being a tsétsé fly (*Glossina Palpalis*). We are now acquainted with the fact that the trypanosoma parasite attacks Europeans, and causes trypanosoma fever, with skin and cardiac lesions of a definite character. It is also fairly established that this fever is but the preliminary stage to the development of sleeping sickness, so that the assertion so long believed in that sleeping sickness did not attack the white man is no longer true.

A paper by Novy and McNeal on the cultivation of Trypanosoma Brucei, appears in the newly established *Journal of Infectious Diseases*. They succeeded, by culture, in isolating this variety, and made various observations of scientific importance. This leads them to hope that most of the pathogenic protozoa will soon be cultivated and studied in like manner, and a clear insight be thus gained into the course of protozoal diseases in general.

PHYSICIANS AND THE VACANT NICHES IN THE HALL OF FAME.

A RECENT communication in a daily contemporary from Chancellor McCracken, of the New York University, deals with the question, "How do physicians stand in relation to the electors of the Hall of Fame?" It appears that of the one hundred judges only four are doctors of medicine, and these, like all the others, were chosen, not as members of the learned professions, but either as leading men of affairs, or as men especially versed in the general history of our country. Rush, Sims and Mott were the only medical candidates voted for by the physician-electors, but certain doctors of dentistry were supported by other members of the board "upon the ground that each of them had high claims to a place as the discoverer of anesthetics." In regard to the present absence of physicians from the Hall of Fame, Dr. McCracken explains that the electors do not attempt to decide who ought to be famous, but who are famous, and are justly famous—that is, famous "in the largest sense"—and also deserve best to receive an increment of fame. The requirement of world-wide fame, the Chancellor very plainly intimates, is not satisfied in the case of any American physician. We gather that, had Edward Jenner been an American, he would have been awarded a niche without hesitation or dispute, not only as being deservedly famous, but because, everybody having been obliged to be vaccinated, everybody knows that he originated vaccination. And if only some individual physician had been as manifestly the discoverer of anesthesia, *his* name would surely have had world-wide fame. In the case of Morton, for instance, although the benefit conferred upon mankind by his successful demonstration at the Massachusetts General Hospital may have been quite as great, and more indisputable than that bestowed by Jenner, still, Morton's claim has not, like Jenner's, been universally acknowledged—he is not famous in the largest sense—therefore he is not admitted. Just so

with the other medical candidates. They deserved more fame than has ever been given them. Each of them (unless we except Benjamin Rush, who was eminent in many ways in public affairs) received support solely on medical grounds, and their greatest achievements were for the benefit of a comparatively small class of society. Then, again, physicians are more largely satisfied than any other class of professional men to be known chiefly to their profession, and not to the world at large. For these reasons, and for these alone, have they been denied the space that, under a less comprehensive scrutiny, some of them at least would have so worthily occupied in our American Valhalla.

THE DEATH RATE FROM ALCOHOLISM.

THE difficulty of reconciling public and private interests (says the *Lancet*) is rarely more marked than in those cases where, in deference to the susceptibilities of patients and their friends, medical practitioners have to conceal information obtained by them in the course of their professional work which might be of great service to the community at large. How much, for instance, might be done to check the ravages of venereal disease if popular perjudice would permit of their notification. Similarly, in cases of alcoholism, the part played by the poison in causing death is usually obscured by the unwillingness of the attending physician to add to the troubles of sorrowing relatives by an outspoken declaration of the real state of affairs. Death certificates are consequently often much less instructive than they might be, and the value of government statistics is often materially diminished through the application of the principle *de mortuis nil nisi bonum*. In Denmark and Switzerland an attempt is made to meet this objection by provisions which enable the medical man to give such details of an illness as considerations of public hygiene render desirable, while at the same time secrecy is preserved in regard to the failings of the particular individual. During the past fifteen years in the case of fifteen of the larger towns of Switzerland and during two years throughout that country it has been the custom for the certificate of death to be written on a card bearing merely a number instead of the name of, and other particulars about, the deceased, as with us. The identity to whom the certificate refers can, however, be ascertained, if this becomes necessary, by a circuitous method which involves application to the central administration at Berne. In this way the practitioner is enabled to express in full his views of the nature of the illness without appearing unduly censorious. The value of such a removal of the restriction imposed upon the medical attendant by the requirements of professional propriety is shown by the figures relating to the effects of alcohol which have thereby become available. Switzerland is not, as far as we are aware, a country where alcoholic intemperance is peculiarly rife, yet it appears that the deaths from delirium tremens in males over 20 years of age amount to 0.5 per cent., which is ten times the rate in France, as officially recorded. For males over 70 years of age, alcohol is given as a principal or concomitant cause of death in 10 per cent. of the cases, while the general death rate directly referable to acute or chronic alcoholism, without including hepatic cirrhosis or other subsidiary conditions, is 3 per cent. By the introduction into this country of some such method as is here described, medical men would be given the opportunity of exercising a similar candor to that which characterizes their brethren in Switzerland, and though the result would probably be rather distressing to our national self-esteem, it could hardly fail to inculcate sundry valuable lessons.

THE SUCCESS OF AN INCOMPLETE WATER SUPPLY.

HALF a loaf is better than none in hygiene and medicine as well as in the kitchen. Even if only temporary or partial improvements can be made, no opportunity should be neglected. This is illustrated by the recent experience in typhoid fever in Philadelphia. This city has been installing a filtration plant on the most extensive scale, making it when completed the largest in the world. Not merely will present needs be provided for, but the future increase has been considered. These improvements are now largely completed, and pure water will be supplied at last the Quaker City. In the meantime the severe storms of February and March stirred up the bed of the Schuylkill, which stream is the present source of supply, while the new plants draw water from the Delaware. As a result there has been a recent outbreak of typhoid fever, three hundred and twelve new cases being reported for the week, ending April 2, and three hundred and eighty-nine for the week ending April 9. Curiously enough, some of the smaller filtration plants have been finished, and two wards, the twenty-first and twenty-second, were supplied with filtered water during this period. Not any especially good results were expected from this procedure, the pipes had been supplying the "raw" water for years, and the experts estimated that it would require several months to clean them of impurities; moreover, these wards are residential wards, and the people of the district, of course, were engaged in business pursuits all over the city. Yet despite these theoretical drawbacks, in the report by wards it was found that only one case of typhoid fever was reported from the twenty-first ward, and five from the twenty-second; this is to be compared with twenty and thirty cases from other wards of the same population. Certainly this emphasizes the lesson that every chance for improvement should be seized; nature is big

hearted, and when assisted has been known to do wonders in the most unpromising cases.

A new and simple method whereby typhoid fever germs can be exterminated is said to have been discovered by Dr. George F. Moore, of the Department of Agriculture in Washington. Dr. Moore's system consists of the application of various chemicals depending upon conditions, the chief principle of the discovery being the method of application. Although the chemical constituents of the water, the character of pollution, the temperature of the water and the season of the year are all factors in governing the method and constituents of the treatment, the system is comparatively simple and is susceptible of application by any trained scientist.

The cost of application is insignificant, being, apart from the pay of those engaged to supervise the work, not over 50 or 60 cents a million gallons of water treated, and the preparations used for eradicating the typhoid or other germs are tasteless, odorless and harmless, in no way interfering with the use of the water for drinking purposes. Dr. Moore is convinced that, had he been able to apply his system to the water supplies of Cornell University and Butler, Penn., where typhoid epidemics directly traceable to the water supplies have recently raged, he could have promptly eradicated the malignant germs, and, without diminishing in the slightest degree the good quality of the water, have rendered it harmless.

Since the discovery of the system, Dr. Moore has thoroughly and repeatedly tested it, and typhoid germs of long established pedigree and pre-eminent viability have yielded to its influence and become as innocuous as the purest water, so that he does not entertain the slightest doubt of the efficacy and value of his system. As typhoid is one of the few diseases conveyed by water, and as this discovery, properly applied, it is believed, will afford immunity from its continued ravages. The discoverer should be congratulated.

In the near future the Department of Agriculture will publish a bulletin giving full details of the system, which will be supplied without charge to boards of health and scientific bodies.

COCOA DRINKING.

THE consumption of chocolate and cocoa, both as beverages and in the form of confections, is said, on good authority, to have increased very rapidly in this country within the past decade. In Boston, especially, culture and cocoa are said to be contemporaneous at the present time. It is a habit which should be encouraged by physicians, on account of the easy digestibility of these products, and their comparative freedom from those narcotic qualities which make tea and coffee more or less injurious in so many cases. The idea generally entertained, and, of course, fostered by the manufacturers, respecting the nutritive value of cocoa, is without foundation. It is in fact, a sort of vegetable soup, "grateful, comforting," and gently stimulating, but of little service as a life sustainer. One result of the growing popularity of cocoa in the United States is the contemplated introduction of the plant in our insular possessions, so that its importation from outside will not be necessary. At present, we are almost dependent upon the cocoa market in Ecuador and the British West Indies, especially Trinidad. Cocoa does not reach its normal development in any latitude north or south of the 25th parallel, and as a tropical climate and a rich soil are equally essential, the most satisfactory conditions are found in the Philippines.

If cocoa ever becomes a domestic product, and consequently cheaper, and if, in addition, some process of manufacture could be discovered by which all its fat could be retained without injury to delicate stomachs, its popularity as a "food drink" would be greatly enhanced. In that case, we should probably find it to be the very best of coffee substitutes; although the immensely larger profits accruing from the cereal preparations would still enable these to advertise more lavishly.

THE TONGUE IN DISEASE.

THE condition of the tongue has from time immemorial been a most valuable diagnostic factor. When examined, it should be protruded as far as possible, so that the whole surface may be inspected. An abnormal appearance indicates fevers; or local lesions; or some disorder of the alimentary tract; or certain other morbid conditions.

In fevers the tongue is generally coated or furred, dry, sometimes fissured, and is apt to look dirty, and the mouth to be bad smelling. In typhoid, when a brown, furred tongue becomes darker and thicker, and sordes appear on the teeth and lips, the condition is serious. When the tongue begins to clear up we expect convalescence; if the coating re-forms, we fear a relapse. The tongue is tremulous in severe fevers, where there is extreme exhaustion. Occasionally there is an abnormally red tongue, due to denuding of the epithelium; this appearance may at times be detected beneath the coating.

A coated tongue may be caused by decayed teeth, or enlarged tonsils, or excessive smoking. Other local manifestations may be the familiar patches of syphilis, which, especially in children, must not be confounded with the patches of stomatitis. Chancre may be found, or there may be circumscribed swelling or hardness, which would mean either syphilis or cancer; to establish the diagnosis here a microscopic examination would be essential. Depressed scars upon the surface of the tongue would indicate healed specific ulcers. We may find in epileptics scars due to biting the tongue. Finally, the tongue may be stained by drugs, or acids or alkalies.

A furred or coated tongue occurs in digestive disor-

ders. Constipation produces this. The furred tongue, with the "chocolate colored" taste appears in the "cold, grey dawn of the morning after" the patient has wined and dined generously. A coated tongue with a yellowish hue would draw attention to the liver. A raw looking tongue, like beefsteak, and of an unnaturally clean, smooth, and perhaps glazed appearance, points to gastric or intestinal irritability. This means shedding of intestinal epithelium, with consequent loss of power of absorption—a serious condition, for here the supply of nutritive material for the organism is interfered with.

The color of the tongue is affected by that of the blood. Thus, a pale, flabby, indented tongue indicates thin and poor blood, as in anemia and chronic inanition. The tongue is dry in diabetes, and in other affections where the bulk of urine is large. It is tremulous in chronic alcoholism, in many nervous diseases, and in lead and mercurial poisoning. A tongue looking as if covered with white paint is characteristic of malaria. The familiar "strawberry tongue" of scarlet fever is bright red, with the papillæ prominent.

The Medical Congress recently held at Vienna revealed a sorry, and at the same time anomalous condition of affairs in the Austrian empire. Twenty thousand communities, or 86 per cent. of all, are so poor that they cannot afford regular physicians, and 30 per cent. of the dead (in Galicia 75 per cent.) are buried without medical certificate. Yet, while there is such need of doctors, the number of medical students is decreasing at a surprising rate. Of every 1000 students in the Austrian universities this year, only 132 are in the medical departments. The total number of medical students is only 2120 as against 5277 in 1888-89—a decrease of about 60 per cent. in a little over a decade. And the decrease is likely to continue. At the congress referred to, Dr. Wichmann earnestly warned all young men against choosing the profession of medicine; which, he declared, the Government had practically killed by its faulty laws in favor of the laboring man. Other speakers dwelt on the same point. They were not opposed to compulsory insurance against illness as such, but to the manner in which it is managed and to the abuses to which it has given rise, and which call for prompt remedies. From the country communities good physicians have long been excluded, because they cannot be supported there, and now that already one-third of the Viennese are taken from private practice by the Krankenversicherung and its underpaid employees, the outlook in the cities becomes hopeless, too. Quackery naturally increases under such circumstances, and the medical man's resources are further cut off by the fact that, thanks to his own hygienic reforms, the number of cases of illness is now little more than one-half of what it was twenty years ago.

Dr. W——, who has become a member of the choir of a fashionable uptown Ritualistic church, now refers to himself as an Epæsculapian, and states that he is a specialist in both anthems and ex-anthems.

BIBLIOGRAPHICAL

A Manual of Diagnosis by Microscopic and Chemical Methods. For Students and Practitioners. By Charles E. Simon, M. D. Late Assistant Resident Physician at Johns Hopkins Hospital, Baltimore. New (fifth) edition, thoroughly revised and much enlarged. Octavo, 695 pages, 150 engravings, 22 colored plates. Cloth $4.00, net. Lea Brothers & Co., Philadelphia and New York, 1904.

Exact methods of diagnosis are of comparatively recent development, and, as they underlie all successful treatment, they should be understood and practiced by every physician. These methods are not complicated nor abstruse, and the object of this volume—an object which has been most satisfactorily attained—has always been to set forth and explain these methods and their practical application so simply that they may be readily grasped by every student and practitioner. Four large editions have already been demanded, the last of which was completely exhausted in less than two years.

Besides a careful revision, this edition embodies much new matter which has appeared in the literature of the past two years. The chapter on the blood has been almost entirely rewritten, and has been enlarged by sixty pages. Special pains have been taken with the chapter on technique. A section dealing with the nature of anilin dyes and the principles of staining has been introduced, which it is hoped will render this portion of the book more interesting to the clinical laboratory worker, and will serve as a guide to further investigation. For convenience of reference, the subject of leucocytosis has been rearranged in such manner that hyperleucocytosis and hypoleucocytosis are separately considered in connection with the different varieties of leucocytes. A new section deals with the kryoscopic examination of the blood. The bacteriology and parasitology of the blood have been enlarged, and sections of paratyphoid fever, gonococcus septicæmia, bubonic plague, trypanosomiasis, and spotted fever. Material changes and additions have furthermore been made in the chapters on the feces, the sputum, the urine, and on transudates and exudates, and minor alterations occur throughout the book. Illustrations, including colored plates as well as engravings, have been added wherever they appeared necessary to elucidate the text, and this new edition will without doubt greatly increase the already wide usage which the volume enjoys.

A System of Practical Surgery.—By Drs. E. von Bergmann, of Berlin, P. von Bruns, of Tübingen and J. von Mikulicz, of Breslau. Edited by William T. Bull, M. D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. To be complete in five Imperial Octavo volumes, containing over 4000 pages, 1600 engravings and 110 full-page plates in colors and monochrome. Sold by subscription only. Per volume, cloth, $6.00; leather, $7.00; half morocco, $8.50, net. Volume I just ready. 936 pages, 361 engravings, 18 plates. Lea Brothers & Co., New York and Philadelphia, 1904.

This system of Surgery by von Bergmann, von Bruns and von Mikulicz, is, without doubt, one of the most important works on the subject that has recently appeared. Its first edition in the original, met with such a demand that the earlier volumes were out of print be-

fore the later ones were ready for issue. The second edition, carefully revised and brought thoroughly up to date, is the basis of the present English translation. The work has been done with great fidelity and thoroughness. The translators have brought to their work not only enthusiasm and industrious effort but also wide surgical experience, enabling them to add judicious references to methods of practice which have gained the preference of English and American surgeons. The number of illustrations in this translation greatly exceeds those found in the original—a feature, which without doubt, will much enhance the value and add to the interest of the text.

The work is encyclopedic in character. Many of its chapters exceed in scope and detail special treatises which have been published on their subjects. The great value of the work lies in its practical and clinical character, but there will be found an abundance of pathological data, details of original research and statistical facts, so that there can be no question of the inestimable value of these volumes to the student, the surgeon and the general practitioner. The first volume, which is now ready, covers the following subjects: Injuries and Diseases of the Skull and its Contents; Malformations, Injuries and Diseases of the Ear; of the Face, including Plastic Operations and the Neuralgias of the Head; of the Salivary Glands, including Anomalies; of the Jaw; of the Nose and its Adjacent Tissues; of the Mouth and of the Pharynx.

The other volumes of the System will follow in rapid succession.

Progressive Medicine, Vol. I, March, 1904. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 337 pages, 7 illustrations. Per annum, in four cloth-bound volumes, $9.00; paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

The adaptability which has enabled American genius to profit by the painstaking work of the Old World, to grasp its import and then improve upon it, is nowhere more strikingly exemplified than in the present series of quarterly digests.

In medical matters particularly, we have received many good things from Europe and have nearly always managed, in making them our own, to add features of characteristic ingenuity and practicality, and, thanks to the zealous effort of the distinguished editor and a most efficient corps of collaborators, we can now boast of possessing in "Progressive Medicine" a conspectus of medical progress which equals the great German "Jahrbücher" in scholarliness of treatment and in accuracy of the material, while it excels them in convenience of reference and in the extremely serviceable manner of presentation.

Considered from every point of view, that of authoritativeness, completeness, adaptation to practical needs, agreeable style, availability for reference, convenient form, satisfactory press work, telling illustrations, and marvelously low price, the work is one that the medical profession may well be proud and grateful to possess.

A Syllabus of Diagnosis. Prepared by Wm. F. Baker, A.M., M.D., Clinical Instructor of Medicine in the Hahnemann Medical College of Philadelphia, Pa. Philadelphia: Boerick & Tafel, 1904. Pp. 107. Price 25 cents.

This is a series of questions based upon a work on clinical medicine by Dr. Clarence Bartlett, and a course of lectures in physical diagnosis, by Dr. E..R. Snader. Such questions are of service to the senior as well as the junior student.

Treatise on Diseases of the Skin for the use of Advanced Students and Practitioners. By Henry W. Stelwagon, M.D., Ph.D., Clinical Professor of Dermatology in the Jefferson Medical College and Woman's Medical College, Philadelphia; Dermatologist to the Howard and Philadelphia Hospitals, etc., etc. Third edition with 220 illustrations in the text, and 26 full-page lithographic and half-tone plates. Philadelphia, New York and London: W. B. Saunders & Co., 1904. Pp. 1115, large octavo.

In the preparation of this book the author has aimed to present the practical part of the subject in a sufficiently complete manner as to make the work one that will give those engaged in general practice, a full comprehension of the symptomatology, diagnosis and treatment of the various affections with which they are most likely to come in contact, in accordance with his vast experience as a teacher. As a preliminary to this the primary and consecutive lesions which are essentially the groundwork of dermatology, are allotted more than the usual space. With the purpose of emphasizing the clinical and diagnostic aspects, the author has made use of a large number of illustrations, original and otherwise, some of which are beautiful specimens of Art, particularly the colored plates from the Mracek Hand-Atlases of Diseases of the Skin and Syphilis, as published by Messrs. W. B. Saunders & Co. The subjects of etiology, pathology, pathologic histology and treatment, are all studied from the practical standpoint, in the interest of the busy practitioner. As the editions have succeeded each other with great rapidity, the present edition differs from its predecessor only in respect to treatment with the X-ray, the high frequency current and the Finsen method.

Physically, the work as a whole is a superb representative of the book-maker's art.

The International Medical Annual. A Year Book of Treatment, and Practitioners' Index. New York: E. B. Treat & Co., 1904. Pp. 740, octavo. Price, $3.00.

The present is the twenty-second year of publication of this popular annual, and it has grown in size as well as in quality, with age.

This year stereoscopic views have been introduced wherever they can be of service in elucidating the text, greatly facilitating the study of the structures under consideration. There is also a series of plates showing the nature and distribution of the eruptions in smallpox and other infectious diseases. It is only by the most careful scrutiny in condensation, that so much can be intelligently crowded into so little space. The size, dictionary arrangement and full index, make it a most handy and useful year book.

Our readers need have no hesitation in sending for this publication, as they will find it eminently satisfactory as a mirror of the world's literature for the year.

Diseases of the Intestines. A text-book for Practitioners and Students of Medicine. By Max Einhorn,

M.D., Professor of Medicine at the New York Post-Graduate Medical School and Hospital, and visiting Physician at the German Hospital, New York. Second Revised Edition. New York: William Wood & Co., 1904. Pp. 397. Octavo. Price, $3.

This treatise is a continuation of the author's work on "Diseases of the Stomach," and follows the same lines. The practical points regarding diagnosis and treatment are always placed in the foreground where they may be readily seen.

This volume fills a void in our literature on this subject, and worthily supplements the work upon the stomach above referred to. This monograph is well worthy a place in any medical library.

Manual of Clinical Microscopy and Chemistry. By Dr. Hermann Lenhartz, Professor of Medicine and Director of Hospital at Hamburg, etc. Authorized Translation from the Fourth German Edition, with Notes and Additions, by Henry T. Brooks, M. D., Professor of Histology and Pathology, New York Post-Graduate Medical School and Hospital; Member of the New York Academy of Medicine, etc. With 148 Illustrations in the Text and 9 Colored Plates. Pages xxxii-412, octavo. Extra cloth. Price, $3.00, net. F. A. Davis Company, Philadelphia, Pa., 1904.

The simplicity of arrangement and the mode of presentation of the subject-matter of this popular text-book, make it of special service to the undergraduate as well as to the general practitioner.

The author has endeavored to present a work which will not only instruct students in clinical microscopy and chemic methods of examination, but also aid them in interpreting their diagnostic significance in practice.

The volume reflects the essence of nearly a quarter of a century of practical experience of one of the foremost diagnosticians and teachers of the age. The American editor deserves great credit for his part in making the undertaking possible for readers of English.

The text is up-to-date, sufficiently elementary for the beginner, and the specialist will find it a ready-reference book of great value.

A Philadelphia Judge, says *American Medicine*, has given expression to the opinion that "the life of a rich man is worth more than the life of a poor man, and the physician has a right to charge the millionaire more for his services than he does the laborer." He went on further to say that "the physician is unlike the merchant, who has goods of different quality to sell at various prices. He must give his best service in every case. But it does not follow that the service is worth the same in every case. Human life has a pecuniary value of variable quantity, greater in the millionaire than in the laborer. Thus, the practitioner of common sense has a maximum and minimum charge, and makes out his bills to suit the pecuniary circumstances of his patients." The writer thinks that "there will be no dissent on the part of right-thinking people" from this view. Carried to its logical conclusion it would appear (the *Literary Digest* thinks) to justify a sliding scale of prices for all the necessities of life, carefully adjusted to the varying incomes of the users.

Dr. Morris Baily, of Titusville Pa., on celebrating his 85th birthday, stated that $42,000 on his books would be wiped out as a present to his patients.

RETROSPECTIVE THERAPEUTICS.

Prevention of Pelvic Disease after Labor.—An overlooked laceration of the perineum (says J. F. Baldwin, in *Journal A. M. A.*), even if very slight, furnishes a point for puerperal infection. A lacerated cervix rests in the sterile region of the vagina, but a lacerated perineum is in the region constantly exposed to infection. This exposed surface is promptly removed by an immediate operation. There is no excuse for a failure to detect this injury, since an examination under the eye should be made in every case, nor is there any excuse for failure to close the laceration immediately, since the materials for so doing are in every house. A small darning needle or a heavy sewing needle, with its temper removed through the center by heating so that it may be somewhat bent; silk, cotton, linen, hair from a horse's tail—all are everywhere available—can be promptly sterilized by boiling, and will answer all practical purposes.

Formalin for Inoperable Cancer.—Powell's method of application of formalin in cases of inoperable cancer is as follows: Absorbent lint is soaked in 2 per cent. formalin solution (commercial formalin one part, distilled water nineteen parts) and laid on the tumor. This is covered with jaconet and cotton wool and bandaged on. The dressing should be changed every six hours. After the third or fourth dressing the discharges and fetor cease. The further process is an aseptic one. In from three to seven days the tumor loses its elasticity, and becomes darkened, friable and insensitive. The further use of formalin is painless, and separation takes place, which should be aided by snipping the fibrous bands that pass into the underlying granulations. Less than a two per cent. strength of solution will not properly harden the tumor mass, and if that percentage is exceeded, the application is painful, the diseased mass becomes surface hardened, separation is difficult, and there is a risk of eschars. By the author's method no local or general anesthetics are required.

Hot Water for Ivy Poisoning.—In a communication from Charles Northon Barney, Assistant Surgeon U. S. Army, stationed at Key West, Fla., to the *Journal A. M. A.*, published in that magazine for August 23d, the use of hot water to allay the itch caused by ivy poisoning is recommended. Dr. Barney has tried several treatments, viz., a combination of carbolic acid, zinc oxide and lime water, of lead acetate and alcohol, lead and opium, but he found none of these so effective as strong heat. When possible, he plunges the affected part directly into hot water; in other cases sops the hot water on with a sponge.

Adams-Stokes Disease—A New Symptom.—Agenore Zeni (*La Riforma Medica*, July 1, 1903), describes a curious symptom, which consists in a perfect synchronism between the respiration and the pulse beat. The ventricular contraction occurred only in coincidence with the respiratory act, and in fixed relation to it, that is to say, inspiration very slightly preceded the cardiac systole. This occurred, not as a temporary phenomenon, but with regularity. The author holds that this is a new symptom of the disease, and that it is due to the fact that the moderating center of the heart is dependent upon the regulating center of respiration, and that the tonicity of certain inhibitory fibers of the vagus is lowered. In other words, during inspiration the activity of those fibers of the vagus which prevent the progress of the

contractile wave through the various portions of the heart, is diminished or abolished.

Urotropin as Prophylactic against Scarlet-Fever Nephritis.—Widowitz (*Wien. Klin. Woch.*, XVI., 90) has never had a case of nephritis among his 102 scarlatina patients since he introduced the preventive administration of urotropin. He gave from .05 gm. to .5 gm. of urotropin three times a day, according to age, during the first three days of the disease, and again at the beginning of the third week, for another three days.

The Distinction between Alcoholism and Alcoholic Insanity.—According to Arthur W. Dunning (St. Paul *Med. Jour.*, Vol. V., No. 9, p. 680, September, 1903; *Medicine*) a close distinction should be made between the inebriate, or common drunkard, and the victim of true alcoholic insanity. It is important from the standpoint of therapeutics and legal medicine. Occasionally an individual is seen who had previously borne an excellent reputation, who gradually loses self-control through excessive drink. In such a case care must be exercised to avoid attributing to mere drunkenness the symptoms which, if carefully studied, show mental unbalance.

In the study of these cases a neurotic family taint is to be given full weight. In such cases a surprisingly small amount of alcohol will cause mental disturbance. Similarly a head injury establishes a condition of the brain which is very intolerant of alcohol. The changes of character and disposition, lapses of memory, indifference and progressive mental weakness are signs of mental deterioration which often show that dementia is beginning. Next there is the periodic type of the drink habit, which is but a phase of periodic alienation and should be positively designated as insanity.

It should be fully appreciated that in some cases the drink habit is one of the early signs of insanity. Alcoholic persecutory insanity is one of the dangerous types, characterized by the wide range of the delusions and a persecutory state. It is sometimes called pseudoparanoia.

On the Spreading of Malaria by Mosquitoes.—Mueller (*Allg. Wien. Med. Zeit.*, June 2, 1903) contends against the general acceptance of the mosquito theory of malarial infection as the most important factor in conveying the disease. Careful observation during a period of three years in a malarious district led him to the following conclusions: (1) The increase or decrease of the number of malarial cases under his observation had absolutely no relation to the presence or absence of mosquitoes. (2) Mosquitoes may, and at times do, convey the infection. (3) That as a causative agent of the disease they are, however, secondary in importance to the time-honored meteorologic and telluric conditions. (4) It is, therefore, premature to accept the mosquito theory as an established scientific fact which should govern our attempts at prophylaxis. (5) The suggestion, for instance, to cover stagnating water with naphtha or similar substances, which, by killing the larvæ of the mosquitoes would prevent the spread of malaria, is false in conception and pernicious in effect, not to speak of its impracticability.

Etiology of Infantile Summer Diarrheas.—Dr. J. Mason Knox, of Baltimore, Maryland, said that the *Bacillus Dysenteriae*, discovered by Shiga, and studied so successfully by Flexner, was present in the severe summer diarrheas of children in this country. This discovery promises to be one of the most life-saving advances in medicine in recent years. The serum of the blood of little sufferers has been demonstrated capable of causing the agglutination of the organisms of dysentery brought from Japan, while the serum of horses, obtained by injecting Shiga's bacillus also agglutinated the microorganisms isolated from the intestinal contents of the American children. There seems no room for doubt left that the summer diarrheas of children are due to this bacillus which causes epidemic tropical dysentery, but has been known to cause sporadic or even groups of cases of dysentery here and there in this country.

Adrenalin in Vesical Atony.—The remarkable therapeutic range of adrenalin is reflected in the numerous reports of its use in widely varying conditions. Moresco, an Italian writer, has used it in that class of cases of disturbed motor function of the bladder, in which there was a slowness or inability to empty the bladder because of a weakness of the muscular fibers. Daily injections were used of five ounces of a 1:25,000 solution of adrenalin. These served to establish spontaneous evacuation of the bladder in about two weeks. One case so treated has been wholly dependent on the use of the catheter, and was enabled to dispense with it.

Cream as a Food.—In an article on this topic the *Household* says: The superiority of cream over butter, or any other solid fat, consists, first, in its being not exactly in a liquid form, but in a condition allowing of great mobility between its particles, permitting the gastric juice to mix with it in the most perfect manner, and with whatever else the stomach contains, thereby facilitating digestion. Its behavior is quite different in this respect from that of butter and other pure fat. As soon as they become melted they grease over the other contents of the stomach, obstructing in a measure, the contact of gastric juice, and hindering, rather than hastening, the progress of their digestion.

Cream is also superior to butter and other fats from its being intimately incorporated with albuminous or flesh-forming matter in a condition favorable for easy and perfect digestion, so that while it serves the purpose of all unctuous matter in developing animal heat and force, it rebuilds tissue, a very important consideration in the case of invalids.

It is a fact in the functions of the human stomach that neither fat alone nor albuminoids alone are digested by it as well as when the two are mingled in certain proportions. A more perfect combination of fat and flesh-forming food could hardly be imagined than exists in cream, each fat globule of which it is composed being enclosed in an envelope of albuminous matter, and besides this, being suspended in a serum of a similar character, making the incorporation of fat and nutritious matter as intimate as it is possible to make it.

One reason why cream is not an article of universal use at almost every meal, like butter, is because it is difficult to keep in good condition and transport. In the household, the morning cream is often a bit off flavor before night in hot weather. Fortunate are those who can secure fresh cream and plenty of it.

Coffee Jelly.—The excessive drinking of coffee, says the *Lancet*, is, in any case, an evil, but it is often forgotten that coffee can be taken in many ways, and in none better than in the form of jelly. A clear coffee jelly after dinner is every bit as good as the hot infusion, while it is free from some of the drawbacks of

the latter. Coffee, unlike alcohol, diminishes organic waste, rouses the muscular energy without the collapse which follows alcoholic imbibition, and gelatin in the form of jelly is cooling, assuages thirst, is soothing, and has a tendency to absorb any excessive acidity of the stomach. Gelatin is what is known as a "proteid sparer"—that is, it saves the destruction of proteid, such as albumin. Having regard to these facts, therefore, coffee jelly should form a very suitable sequel to dinner, and an excellent substitute for the infusion. Moreover, the astringent principles of coffee, which, however, are different in kind and degree from those present in tea, are nullified by the gelatin. In short, gelatin is an excellent vehicle for coffee; but, as is necessary in making the infusion, the quantity of coffee in the jelly should not be stinted. Coffee serves an admirable purpose in dietetics, and those with whom it disagrees when taken in the form of a hot infusion will, very probably, find the jelly quite satisfactory.

Salicylic Acid Harmful.—The food test at the Department of Agriculture, which has been going on for several months past, to test the effect of salicylic acid on human health, has brought out some queer results. The general fact is established that salicylic acid seriously injures health. The experiments have been abandoned to save the subjects, but will be resumed when the men have recovered somewhat from the effects of the past two months' diet on prepared foods into which salicylic acid enters as a preservative. Dr. Wilie says that he expected this result. The experiment on foods preserved with borax turned out just in the same way.

Hospital Bookkeeping.—Upon this subject a recent number of *American Medicine* contains some editorial comments which, in view of the existing deficiency in the New York city hospitals with regard to the keeping of accounts, we recommend to the serious attention of their superintendents and administrators. The Hospital Association of Philadelphia, through a special committee, has rendered a report upon accounting in which it recommends above all "some uniform system whereby the statistics of expenses can be made of any use whatever in comparison with each other and for the benefit of those asked to contribute to support." Taking everything into account, the committee concludes that the most satisfactory statement, both for the public and for the hospitals, would be something like the following:

1.—(*A*) Whole number of private patients treated.
(*B*) Whole number of ward patients treated.
(*C*) Number of full hospital days.
(*D*) Number of patients remaining less than 24 hours.

These facts, fairly stated, would give a correct basis for calculating the actual service of the hospital.

2.—Cost of plant maintenance.
(*A*) Administration and general wages.
(*B*) Improvements, furniture and repairs.
(*C*) Interest, insurance and taxes.
(*D*) Light and heat.
Total cost of plant.

3.—Cost of maintenance of patients.
(*A*) Medical and surgical supplies.
(*B*) Nurses and attendants.
(*C*) Food and clothing.
(*D*) Emergency supplies.
Total cost of patients.

THE CLINIQUE

XANTHOMA.—The case I propose to discuss is of interest, because it practically always occurs in women. It may perhaps exist in men, but I have never seen it. It is a condition about the eyelids, a patch of yellowish elevated papules about the size of a pea; sometimes you will find them much larger, sometimes they become confluent. It is usually of several years' duration. Xanthoma, a fatty, connective tissue growth seen about the eyelids, and in women. In this illustration the disease is represented as also upon the hands. That is very rare.

The special interest of this centres in the treatment. A surgeon would recommend excision, and in a case like this the results would be good. But where the disease is extensive, excision is out of the question. The next best method then is electrolysis, such as is used in the removal of superfluous hairs and of small angeiomata, with a small electric needle and a current of about two to four milliamperes. Remember, that it is the negative pole with which you pierce the growth itself, and connection is made by touching the face with the positive sponge or by the patient's holding it in the hand. After the current is made the parts around the needle will begin to grow pale and when they are decidedly pale the patient is signalled to withdraw the sponge and then you withdraw the needle. If the needle is first withdrawn the patient may experience a shock or an unpleasant flash before the eyes, so always make the break at the positive pole.

So the patient has these two methods from which to choose, operation, which is the quickest, and electrolysis, which might be repeated three or four times. The needle would probably have to be introduced in four or five places. If the treatment is repeated this can probably be called acne punctata. It is a cold, sluggish-look-disease, simply one of disfigurement.

ACNE PUNCTATA.—This patient is aged sixteen, has an eruption on her face, which has lasted two years, and occasionally appeared on the shoulders. There are blackheads, papules and small pustules. It would probably be called acne punctata. It is a cold, sluggish-looking type, leaving scars, and the kind that does best on the cod-liver-oil treatment.

In a case like this you can get on much more rapidly if you use an instrument for removing blackheads, a cup-shaped comedo expressor, which will act without breaking the skin. For the other part of the treatment, have the patient wash the face every night with soap and water. If there is marked inflammation, this may be followed by an application of calamine and zinc oxide. If not, as in this case, use a lotion of zinc and sulphate of potash. Later on, constitutional treatment, such as cod-liver-oil. Ten or twenty drops of cod-liver-oil seems to have a specific action on this kind of acne.

Never allow a patient to disturb you by saying that one or two more have come after treatment for a few days. It would be surprising if it were not so. The point is whether the case is going to improve even gradually.

In connection with what has been said already I will speak of the use of electrolysis for the removal of superfluous hairs. There is only one method in reality, that is, the electric needle, of removing hairs permanently. Many other depilations are advertised, but they are all

only temporary in their effects. They have their place, and I am beginning to think a more important place than we dermatologists have given them.

Among depilatories sulphide of barium is one of the very best. It is comparatively harmless. At the application a little water is added to make it into a paste, and it is allowed to remain on from two to six minutes according to the delicacy of the skin and the strength of the mixture. Three or four minutes is usually the right length of time. It is then washed off, and in ten days or two or three weeks it will have to be used again, because the result is not permanent. It is mild, and can be used where electricity cannot, where there is an extensive growth. I have my doubts whether these applications make the condition worse. Patients will tell you so, but you must bear in mind that this is the natural course of events; the hair will grow stronger and longer if nothing at all is done. Even if it does become worse on application, the hair must be removed, and it can be done in the future just as it has in the past. Always be sure you have the freshest sulphide of barium, or it will not remove the hair at all. Many of the advertised depilatories are arsenical, many contain sulphide of barium. Depilatories are better than cutting the hairs, because they get down into the follicles, and the reappearance is less rapid.

As to electrolysis, the best cases for this in my own judgment are where the hairs are comparatively few and strong. Then the operation is brilliant and permanent in results. You use a fine needle, and the negative pole of the battery is attached to the rod which is in the handle. A sponge is attached to the positive pole. Remember that you cannot perform this operation with the Faradic battery; the galvanic or continuous current is required. If you have the chloride of silver battery never get less than thirty-two cells, though you may not use more than sixteen. With the bichromate of potash do not get less than twenty cells. It requires from one-half to two milliamperes. The needle is introduced alongside of the hair, it does not penetrate the skin. It is introduced about one-eighth of an inch and strikes the papilla. The patient makes connection with the current by the hand. The skin gets pale, and there is a little bubbling at the surface of sebaceous matter and gas. In ten to thirty seconds the patient is signalled to withdraw the hand and the needle is withdrawn. The general practitioner often uses an interrupter that comes with the instrument, but no dermatologists use it. It causes a flash before the eyes and a shock.

There are several points to remember in the operation. Wash off the parts beforehand so as to have a mildly aseptic condition. And sterilize the needle, if platinum, in an alcohol flame. Never operate on two follicles close together—you will have scarring. There is a certain amount of destruction of tissue; some causticity is produced in the skin, and it is by care only that you can avoid scarring. The scars that I have seen were all produced by operating on too closely adjoining areas. Afterwards the parts are bathed in alcohol, and washed with hot water every two or three hours during the first day. There is a lesion of the skin that looks like hives, but disappears during the first day, leaving small spots. These may be rubbed with a little cold cream, and in four or five days, sometimes after two or three weeks these will disappear.

The pain during operation has never been so great that the patient had to give up sooner than I did. Some operators use a magnifying glass. It needs good light. In a half hour one can remove twenty or thirty hairs ordinarily. It is a simple operation, and there is no reason why any practitioner cannot do it. In removing one of the hairs take a forceps and, if the hair comes out without any traction the operation is successful. Do not introduce the needle again into the follicle, there will be too much destruction of tissue. The ordinary scar is not a visible one to patient or friends.

Electrolysis is also used to remove small angiomas of the face; there is nothing better. You go through the same process already described. Usually after one operation of that kind the growth will entirely disappear. The needle is introduced in various parts, especially around the edge. In some cases you will find it necessary to repeat the operation several times.

I will also take up the discussion of *psoriasis*, a disease with sharply defined, scaly patches of inflammatory type. It is almost invariably worse in winter; almost all cases spontaneously grow better in summer. It first attacks the patient between fifteen and thirty years of age. It is a recurrent disease, and may disappear for a year or two only to break out again. One cannot promise to cure so the disease will not return; but the disease may be kept in abeyance. I have seen cases that were practically cured for four or five years.

There are certain parts that are favored by the disease, as the extensor regions of the legs, and arms, especially the elbows and knees, and an appearance on the scalp is not unusual. When psoriasis is suspected in the scalp, examine carefully along the margins and just behind the ear, for it is apt to extend just beyond the margin. This is of diagnostic aid, and you should also always examine the knees and elbows.

As to the etiology of the disease it is a result of hyperæmia of the rete. The cause is obscure. An underlying base is often a rheumatic or gouty diathesis, and this is at the bottom of many cases of eczema. Another factor in many cases is debility. A person may be entirely free from it so long as the health remains normal, but when the general condition is not good, as in the strain of nursing a child, there is apt to be an outbreak. On the other hand persons who do not present any signs of ill health sometimes show marked evidences of the disease, so much so that it has been called a disease of the healthy. I am convinced, however, that it is always due to some underlying debility.

Several remedies are used. If there is any specific it is arsenic; but unfortunately many cases will not yield to this treatment, and when the type is markedly inflammatory, rapidly spreading, arsenic does harm. In sluggish cases arsenic acts as a true specific, especially so if the patient has not been treated with arsenic before. If there have been four or five attacks, and all treated by arsenic, it is not of much use.

Alkalies are of use in the rheumatic and gouty types, the salicylates, liquor potassa and iodide of potassium. Others are the so-called diuretics; among them oil of copaiba and oil of turpentine may be used cautiously, especially if other remedies have had no effect.

The important part of the treatment is local, and this varies with the stage. If in the first stage, order baths. If the lesions are small it would be impossible to medicate them individually. One method is washing with tincture of green soap, connected with an alkaline bath. The baths may be given every two or three days. You

can moderate the harshness and counteract the effect of the alkali by some grease. Locally tar ointment is one of the best if you can get people to use it. Naphthol, a dram to an ounce, and pyrogallic acid, 30 to 60 grains to the ounce, are good. Chrysarobin in the form of a paint is probably the best in large patches. It stains the clothing and stains the surrounding skin, and it may produce inflammation of the surrounding skin, which is temporary. It should never be used about the scalp or face.

In reference to the etiology I would say that this has not escaped the bacterial theory. The disease is practically not contagious. Heredity is a factor. It is often seen in generation after generation, or it may skip one and appear in the next.

The Relation of Severe Lesions in Typhoid Fever to Nervous Symptoms—Pneumonia Complicating Typhoid Fever.—The specimens under review are taken from a young colored woman who was in the hospital one week. She was thought to have typhoid fever, and this proved to be the fact. The principal feature about the case was the extraordinary nervous disturbance of the patient, she having high delirium and extreme restlessness, the latter being so marked that we were obliged to strap her in bed. Toward the end the delirium increased, and in spite of stimulants she sank.

We have here a remarkable specimen of lesions in the intestine. Not only are Peyer's patches involved, many of the ulcers penetrating to the peritoneum, but the ulceration has extended into the colon for a distance of twelve inches. The solitary glands may be affected as well as Peyer's patches in some cases, but for the ulceration to extend into the large intestine is very unusual. The patient had some diarrhoea, but no blood was passed.

This leads me to refer to the connection between nervous phenomena in typhoid fever and the degree of ulceration in the intestine. Some years ago I expressed the belief that where there was great nervousness, extensive ulceration of the bowel was present. This is a case in proof of such statement. We may say, then, that marked tremor, nervousness, and extreme restlessness, irrespective of delirium point to deep ulceration. The character of the stools will not always tell exactly, as there may be nothing special in their appearance.

A second point in regard to this case is that, although on account of the great nervousness, the patient was strapped to the bed and but little good was derived from the use of camphor and morphia, some benefit was derived from a drug not generally used in such cases. I refer to the hydrobromate of hyoscine, which was given in the dose of one two-hundredth of a grain, three or four times a day. This was the one remedy that kept the patient somewhat quiet.

PNEUMONIA AS A COMPLICATION IN TYPHOID FEVER.

Our next patient is a colored girl of seventeen, who came under observation after being ill for fourteen days. Irrespective of the clear clinical evidences of typhoid fever the widal test was positive, so there was no doubt of the existence of that disease. Equally clear was the existence of a true pneumonia in the base of the right lung. At present the patient is convalescent from both attacks. Let us look at the case as admitted, and see what share the pneumonia took in this case.

As she was not admitted earlier we cannot tell just when the lung complication began, but from the history of the cough it is probable that this was about the middle of the typhoid fever course. There are various lung conditions in typhoid fever, but true pneumonia is rare. When occurring in the middle of the fever course it adds a great element of danger to the case. The typhoid poison fastens on the lung instead of on the intestine with its greatest virulence. If fatal, the bacilli are found in the very structure of the lung. This condition then should rather be looked upon as an essential part of the case than as a complication, as the bacilli attack the lung rather than the intestine. Occasionally the process is this: pneumonia begins the case and the enteric phenomena are light. The Germans call this "Pneumotyphus," and it is always of excessive gravity. When coming early the prognosis is of the greatest possible gravity; later in the course it is still grave, but not always fatal, as is proven by this case.

The treatment here was the giving of carbonate of ammonium, five grains every third hour, and one-thirtieth grain of strychnine every third hour. As a stimulant one-half ounce of whiskey was given every two hours. Dry cups were applied at the back of the right lung with much apparent benefit. Nothing was done for the intestinal lesions, as our whole attention was given to the condition of the lung, except that typhoid fever diet was given all the time.

The Manifestations of Cerebral Syphilis.—A patient under my care recently presented such an interesting series of symptoms that I venture to report them: Her initials are M. R. T. She is forty-one (41) years of age. Her family history is negative, inasmuch as the cause of her father's death is unknown; her mother, however, died of apoplexy. I will anticipate this woman's history by stating, that she, too, has had an attack of apoplexy, from which she has almost entirely recovered. In my experience it is not at all unusual to find that apoplectic attacks seem to be hereditary in some families, even when there is no suspicion of any taint. A well-known example of this statement exists in the family of Sir Walter Scott, the great English novelist. His mother, and four of his uncles and aunts, died of apoplexy; besides this, there were many other cases in his family.

This woman has had rheumatism for twenty years, but it has never been severe enough to confine her to bed, until her last attack, which this time happens to be sub-acute in character.

It was last summer that she had this paralytic attack, in which her whole left side was affected. Her leg was more affected than her arm, and this is very unusual. Motion and sensation were both impaired, but only for one week. There is no history of traumatism. The leg recovered first as is generally the case, and the arm is still weak. She recovered from this attack in three weeks. It is said that the patellar reflex was lost on the left side.

There is in this case what we call a specific history of twenty years' standing. This, I believe, to be beyond question.

Four weeks ago began this attack of rheumatism, affecting both legs from the ankles to the knees. She says it began on her moving to new quarters, and the new quarters are very damp. She has been under treatment, though not here, for three weeks. There are on the posterior part of her thigh some cicatrices. There is a general thickening of the lower part of the right tibia and fibula. The muscles are tense in the popliteal region. In the urine there is no albumin, no casts, and no sugar.

Now, of course, the indications for treatment here are very plain. Her present condition is not from articular **rheumatism. She has been given** a preparation containing one-half grain of corrosive chloride, one-half ounce of the iodide of potassium, and enough infusion of gentian to make three ounces. She was to take a teaspoonful three times a day.

There has been some involuntary passage of feces There has been nothing very abnormal in the heart or lungs.

Now, what was the cause of her attack of apoplexy last summer? We might say it was one of the "cerebral symptoms"; but such a term is very indefinite. As regards the brain, we know that the lesion of syphilis is located in the membranes or in the blood-vessels; the gummata spring from there, or an endarteritis is excited, which is often responsible for these attacks. These attacks are often preceded by premonitory symptoms; and we ought always to take advantage of these premonitory symptoms and put the patient immediately under treatment.

I remember one man whom I knew that was a man of culture, yet had lived a rather wild life at times. He was suddenly siezed with a loss of power in the fingers of one hand. While I was with him it passed off. But on successive mornings the weakness made its appearance. I explained to him that this condition of paresis was due to an endarteritis, a thickening of the blood-vessels which supplied the centers in his brain presiding over this hand. It produced a local anæmia of this part of the cortex. I advised him to take a little wine in the morning before the symptoms appeared. He did take a small quantity and the symptoms did not appear. The wine strengthened the heart's action. However, the thickening of the blood-vessels went on in spite of the iodide of potassium under which he was put, and little by little there was a softened area and eventually he was carried off. Now, that is one form of the so-called cerebral symptoms—endarteritis. Then, there may be thrombosis in these vessels. Another symptom we may have is sudden aphasia. It is said by some authorities that transient attacks of aphasia are always due to cerebral syphilis. I remember one medical student who was rendered almost frantic by these sudden attacks.

Another form is convulsions. They may be general resembling those of epilepsy; or they may be local, as in "Jacksonian epilepsy, where one member—as the foot—is involved, and the patient perhaps sits and watches the gyrations of this foot with as much amazement and astonishment as the physician. Then, again, I have seen profound coma as another of the cerebral symptoms. I remember one case which revived very soon by the application of a blister on the back of his neck. I do not exactly understand why a blister on the back of the neck should have this effect; but it did in that case, and I was supposed to have done marvels for him—and, of course, I had. He was afterward given large doses of iodide of potassium and recovered.

Then, again, there may be arteritis of the vessels in some other portion of the body, and this may lead to thrombosis, and an apoplectic stroke result from an embolus being conveyed to the brain. Or, certainly, there may be a thrombus in the valves of the heart.

This patient has a very irregular tibia, and it is sore and tender on pressure. Taken in connection with her history it must be a periosteal inflammation. And this inflammation does not necessarily lead to a necrosis of the bone.

The thing we have to do here is to persevere in the treatment. If the symptoms become urgent, she should be put on a more active use of mercurials; inunctions with the oleate of mercury could be followed by large doses of iodide of potassium.

Dr. Seguin claimed that benefit is often obtained from the use of very large doses of iodide of potassium, and he was the first to show us that one hundred or one hundred and fifty grains could be taken in a day not only with impunity, but with benefit. A saturated solution of iodide of potassium, so that a drop represents a grain, may be given in milk, so as not to produce nausea.

Another form of paralysis, you must remember, results from the situation of gummata at the base of the brain. Paralysis of the third nerve may result, and all the muscles of the eye will be paralyzed, except the external rectus and the superior oblique.

DIET IN CHRONIC BRIGHT'S DISEASE.

At a meeting of the Royal Medical and Chirurgical Society, White presented the results of investigations made on the influence of various diets upon the composition of the urine and general condition of patients suffering from chronic Bright's disease. He shows that all the prior reasons which have been urged in favor of milk or any other particular diet are fallacious, and that consequently the only way to attack the problem is to carefully observe the condition of the urine and the conditions of the patient upon different diets. It is very necessary not to draw deductions from too few cases. He has therefore taken ten cases of chronic Bright's disease in which the urine has been carefully analyzed every day for many weeks, so that altogether between four and five hundred analyses of it were made. In each case notes were kept also of the general condition of the patient. The following diets were tried: Milk, 3 pints a day containing 1,076 grains of proteid; farinaceous, consisting of bread and milk, containing 1,137 grains of proteid; full diet, consisting of bread, butter, milk, meat, rice, pudding, and containing 1,522 grains of proteid. Sometimes the effect of adding fish, eggs or more meat was tried. The following results were reached: 1. Quantity of urine. Usually more urine is secreted upon farinaceous or milk diets than upon full diets. 2. Specific gravity. The diet has no certain influence on this, but on the whole it is lower on milk and farinaceous diets than on full diet. 3. The quantity of albumin passed: The figures show that nearly always the albumin passed is more upon milk diet than upon farinaceous, and

less upon full diet than upon either milk or farinaceous. Even in the rare instances in which the maximum quantity is passed upon full diet, the excess of proteid in the full diet more than compensates for any extra loss of albumin, so that patients always best avoid loss of albumin by a full diet. 4. The quantity of urea passed: The influence of diet upon this is most uncertain; often less urea is passed upon full diet than upon farinaceous, and less upon farinaceous than upon milk. Sometimes the reverse is true.

5. General condition of the patient: The cases distinctly show that full diet is not more liable to lead to uraemia than any other; in fact, in one patient full diet appeared to ward off uraemia, and the patient ultimately recovered. The patients always felt and seemed much better and stronger on full diet, or on farinaceous diet with meat or eggs added, than on milk or farinaceous only. Many patients loath milk diet and greatly dislike farinaceous; on the other hand they relish full diet.

The writer advises full diet, for it does not lead to uraemia, nor is it harmful in any way; but it saves albumin, the patients like it and improve on it in all respects, while they greatly dislike other diets. If the diuretic effect of milk is desired, plenty of water can be drunk. Maguire agreed that the amount of albumin passed was not, perhaps, of any great importance, except in as far as it indicated the extent of the general disease. In the treatment of Bright's disease it was more important to consider the patient's general condition than to concentrate one's attention on the condition of the urine. The condition of the circulation ought to be carefully noted. Provided that were done, he thought the choice of diet might be somewhat modified at the different stages of the disease. There was, for instance, an early stage of granular kidney, or rather a stage which would develop into granular kidney if left to its course—a condition to which Dr. Broadbent had called attention years ago, characterized by a high tension pulse, labored heart beat, and a albuminuria. It would be a mistake in such cases to give a patient carte blanche in the matter of diet. In the middle period, a period at which the patient seldom came to the hospital, because he might still be unaware that he was the subject of any serious disease, with high arterial tension and a heart capable of dealing with it—in this stage it behooved the physician to be careful in respect to a full diet. in the later varieties, where the patient was suffering from the effects of the continued high tension, a full diet might be of the greatest benefit in order to enable the heart to cope with its difficulties. Then, too, mercury might be given with advantage to counteract the possible ill effects of the full diet.

Broadbent thought that the general treatment of chronic Bright's disease ought to be guided mainly by the tension of the pulse and the condition of the heart. He has satisfied himself that uraemia was not due to the presence in the blood of urea or of any specific toxines. It was simply a question of the balance of circulation. It was when the resistance at the periphery overmastered the heart, when they got stasis of the cerebral capillaries, that symptoms of uraemia presented themselves. Considerations of that kind explained what had been illustrated by several of the author's cases, that the remedy for threatened uraemia was not starvation or milk diet, but to diminish the resistance at the periphery, and to increase the vigor of the heart's action, with which object in view a more liberal and more highly nitrogenous diet was of the greatest possible importance. The question of the influence of diet on the excretion of urea was one of the greatest interest. In all these questions further investigation was necessary, special attention being made to the character of the motions.

Cyanide of Cacodyl.—Prussic acid has long been supposed to be the most deadly poison, but now Lascelles Scott, an English chemist, makes the startling statement that the substance known to scientists as dimethyl arsin cyanide, or, more shortly as cyanid of cacodyl, is thousands of times more poisonous than pure prussic acid.

Prof. Scott declares that a whiff of this poison would kill a large roomful of people, and the vapor from three grains diffused into the air of a theatre would suffice to kill every person in the audience.

Fortunately for mankind, this poison is so deadly that the criminal who attempted to use it would, in all probability kill himself. It is a white powder which melts at 33 degrees and boils at 140 degrees. When exposed to the air it gives off a slight vapor, to inhale which is death.

Although so little of the properties of this poison is known, it was first made many years ago by Cadet, a famous chemist, by combining potassium acetate with white arsenic. The mixture produced a fuming liquid, which, although he did not know it, was oxide cacodyl. The German chemist, Bunsen, combined this with cyanogen, a radical of prussic acid, and made cyanide of cacodyl.

St. Petersburg has the highest death-rate of any European capital, 51 per 1,000.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

1. What action on the heart has valerian in full doses? State the therapeutic uses of valerian.
2. Give the symptoms of (*a*) acute lead poisoning, (*b*) chronic lead poisoning.
3. Where is jalap indigenous? What part of it is used in medicine?
4. What are the therapeutic uses of juniper? In what cases is it contraindicated?
5. What is the practical import of hematuria and how can its source be diagnosed?
6. Mention the salts of silver used in medicine and give the dose of each.
7. Describe the therapeutic uses of (*a*) water, (*b*) mineral waters.
8. Give the etiology and treatment of scarlet fever.
9. Where is the cinnamon tree indigenous? Mention the active principle of cinnamon and give its dose.
10. What therapeutic uses has chloroform other than as an anesthetic?
11. Give the treatment of tic-douloureux.
12. What is the dose of tincture of belladonna, and what indications show that its physiologic effect has been obtained?
13. For what purposes and effects is strychnia frequently used in formulas for cathartics?
14. Give the symptoms and medical treatment of appendicitis.
15. Give the formula of normal salt solution.

MISCELLANY

The compound tincture of benzoin is an admirable remedy for chapped hands, lips, cracked nipples, and all frosted conditions, etc.

According to the Bible, says *Drug Topics,* Lot's wife was the only living person to undergo two distinct chemical changes. First, she turned to "rubber," then she turned to salt.

Rush Medical College, now the medical department of Chicago University, is soon to benefit by the expenditure of a large portion of $10,000,000 in new hospitals and laboratories.

It is stated that the British Medical Association not long since sent a request to the lay press urging that the names of physicians attending cases should not be made public in its columns, with the exception of those in attendance upon any member of the royal family.

Spinal anesthesia is now only specially employed. Donitz (*Muench. Klin. Woch.,* Aug. 25, 1903) has reported surprising results where adrenalin was combined with cocaine. It was found to greatly lessen the toxicity of the cocaine, and the duration of the anesthesia was increased.

The newspapers mention that no less than one hundred and fifty persons willing to part with an ear for $5,000 applied at the office of a physician, a wealthy patient of whom had offered that amount for an ear of the right size and shape to take the place, by means of a grafting operation, of one he had lost.

The Dutch Government is desirous of adding a section on homeopathic medicaments to the Dutch Pharmacopeia, and a sum of 500 gulden is placed on the budget for 1904 for carrying these wishes into effect. It would be a good idea, *Practical Druggist* thinks, if the U. S. Committee of Revision followed suit.

The chemists of the Agricultural Department have shown that ability to fix the nitrogen which is infinitely abundant in the air, and apply it to the worn-out fields of the world will enable mankind to cultivate what is practically virgin soil forever. A plant at Niagara Falls is taking nitrogen from the air by electrolysis, but not yet in commercial quantity.

It is reported that a Norwegian chemist has discovered a new and cheap process for making alcohol from sawdust. One hundred kilograms of sawdust yield from 6 to 7 kilograms of alcohol. Valuable by-products are methyl alcohol and acetic acid. While in Norway 100 kilograms of potato alcohol cost $10.50, the cost of sawdust alcohol is only $6.50.

For the mechanical treatment of infants' obstipation, Clamann (*D. Med. Woch.,* 29, No. 114) introduces an oiled, medium-sized, Nelaton catheter into the rectum as the infant lies on its back. He works it in for 15 cm. or more, and twists it gently to induce reflex expulsive action on the part of the intestines. This "oil catheter" has never failed him in several years' experience with it.

Remarkable cures of typhoid fever patients are reported in Beth-Israel Hospital, New York, where a serum imported from Italy and Switzerland is being used. Thirty cases have been treated at the hospital, which is in the most crowded quarter of the East Side. Not one of the patients died, and in most instances improvement set in before the fever had run more than half its regular course.

It is stated by one of the leading geological authorities of the Dominion, that in all probability a source of radium will be found in connection with the deposits of uranium compounds which have been discovered in Ontario.

Dr. Duata, professor of hygiene at the University of Perugia, Italy, says the *Medical Record,* has published in a Milan newspaper a severe arraignment of the Pasteur treatment of rabies, which he says causes, but does not cure the disease. Before the introduction of this mode of treatment, he says, the average annual number of cases of rabies in Italy was sixty-five, but since the institution of the Pasteur method the annual average has risen to eighty-five.

Wasps living near roads or dwellings (according to a Scottish observer), act differently from those in fields or woods, becoming familiar, and, if encouraged, coming daily to share your lunch. They will sit on your easel or arm, and, after confidence is established, will not resent being stroked with the finger. Everywhere, under the summer sun, wasps are at work removing what is offensive to man, and they, besides, play an important part in plant-pollination.

The speed of nerve impulses in man is stated by Dr. Alcock, in a recent paper read before the London Royal Society, to be 66 meters [216 feet] per second. Sir Michael Foster, in his "Physiology" (1888), gives it as 33 meters per second. A correspondent of *Nature* (London), W. R. Gowers, remarks that either Sir Michael Foster or Dr. Alcock is widely wrong, or the rate of transmission has become greatly accelerated during the last fifteen years. Of the two, the latter seems to him the simpler explanation.

Dr. J. R. Eastman, of Indianapolis, claims that a commencing felon will always be aborted by the local application of alcohol under perfect air exclusion. Cotton is saturated with alcohol and placed about the affected part and a thin rubber finger-stall applied over all. Seventy-two hours usually suffice to give relief or even effect a cure. He learned this in Von Bergmann's polyclinic in 1897, since which time he has not had occasion to lance a single felon the treatment of which was begun in time by this method.

Gerson (*D. Med. Woch.*) recounts his experiences with soap spirits as a disinfectant for instruments. He found that instruments wrapped in cotton saturated with the above-named solution, after a few moments' exposure, were perfectly aseptic. If infected with pus, subsequent wiping with soap spirits rendered them sterile, so that no growth could be found when the instruments were placed on nutrient gelatine. Instruments wrapped in the same way, and laid aside in an instrument cabinet, were found to be sterile after long periods, the film of soap having formed a protective coating.

H. Secretan (*Revue Medicale de la Suisse Romande*) reports the case of a young woman who came to him one hour after her finger had been completely severed above the nail by a cutting machine. While he was examining it, her friend took the severed end out of her pocket, wrapped in a soiled newspaper. The patient insisted that the end should be replaced. Owing to her persistency, Secretan replaced the severed member with subcutaneous sutures and one deep. The results were excellent; within 10 days the wound healed by first intention, and the patient returned to work at the end of one month.

ORIGINAL ARTICLES

CONCERNING THE PHYSICIAN'S FINANCES.*

BY J. HOWE-ADAMS, M.D., PHILADELPHIA, PA.

THE American physician is accused of being "unbusinesslike." In this world where even the best, bow to the Power of Money, this is a serious charge; it were better for the doctor were he called "out of date," "idiotic" or "selfish." The American public extols the physician for his work, and yet is unwilling to realize that much of it must be "unbusinesslike" in a monetary sense. Again, the excellent Code of Ethics is smiled at by the business man not realizing that the high professional standing of physicians is much upheld and sustained by this so-called "absurd standard." On the contrary, I feel that for any class of men not to be grasping, not to be scheming for selfish advancement in a money-mad world is really the highest praise. As I see, year after year, the work of the reputable physician, I believe it is oftener more self-sacrificing and closer to the commands of a Master who was called "The Great Physician" than even the work of the average minister.

The physician should not feel badly that he is called "unbusinesslike"; even genuises do not now escape this criticism. In the recent editorial comment on the death of Bret Harte in a New York journal the comparison was made between the elder Hearst and Harte, probably because they lived in the same region at the same period. The article grudgingly acknowledged that the writer of "The Heathen Chinee" and "The Outcasts of Poker Flat" was a genius, but it went on to state how much better it would have been for Harte if he had put the money he made into San Francisco real estate or some Comstock mine. Half unconsciously he was unfavorably compared with Hearst on the ground that the latter left a fortune. In other words, Harte's life was a failure because it did not meet the standard of a Hearst; all the witchery and poetry of a genius is to be measured by the footrule of the height of a bank account. Richard Grant White voiced the same modern prejudice when he wrote that not for Shakespeare's fame and glorious mind would he have borne that great bard's privations. White was an ardent Shakespearian scholar, who had made a lifelong study of the Bard of Avon. If a scholar feels this way, what of the average business man?

Of no member of human society does the world get so large a return as from the physician; he must be prepared at all times to exhibit the intuition of a Sherlock Holmes, the cunning of a Machiavelli, the courage of a Spartacus, and the self-denial and self-control of a Washington. The hardiest of constitutions, superior intelligence, intense application to business such as the average man knows nothing of, are all necessary for success in medicine. As I think of the successful physicians of America I believe there is scarcely one of these men who would not have succeeded in almost any other line of work.

My idea, therefore is not to attempt to instill any businesslike methods, a task of which I am incapable, but rather to take up the question of investment which the majority of us only learn by bitter experience. I have taken the pessimistic side and have tried to point out many of the pitfalls in this uncertain field.

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I. INVESTMENTS IN STOCKS.

Theoretically, investments in securities listed on a stock exchange is the ideal form of investment. Here the conception of a marketable wealth is carried to its fullest development. There is no searching the validity of title, no dispute or uncertainty of price while there is a constant market in which the investor may in a few minutes convert an entire estate into actual cash at a trifling cost. The investor knows each day the value of his securities, and in the stocks "on the official list" he receives from time to time reports on their condition.

In addition to this, the stock market and by this term I mean to include the exchanges for all commodities such as grain, cotton, etc., seems to possess certain unique advantages that no other forms of business show. This is the capability of making money on a declining market. The owner of real estate, of any industry or corporation must be "a bull." To make money prices must advance. If the investor thinks prices are unduly inflated, he is still able only to sell what he owns; he cannot sell real estate if he does not own it, unless he wishes to run the risk of going to jail. This is not true in the stock market; the doubting investor can "go short of the market" and make money in a panic if he happens to catch such a movement. This single advantage seems of vital importance. Stock trading requires no asking of favors, no soliciting of business, hat in hand; it can be neglected without injury while its volume is always sufficient to satisfy the largest ambition. A messenger from Mars or New Zealand examining mundane affairs on a strictly theoretical basis would be apt to report most favorably on this form of investment.

Yet when we come to study the actual conditions in the stock market, we find matters far from ideal. Stock trading or speculation has a hard name; so much so that it casts a cloud over the man who speculates while occupying a position of trust. The manipulation of stocks has grown to such proportions that no trained dog responds more promptly to his master's eye than do the quotations to the master hand. The public has just again learned the bitter lesson *that it must always lose.* Of course, much inane criticism is leveled at the market after a decline, but it is fair to acknowledge that there is no especial relation between the intrinsic values and their quotations on the exchange. Comparisons are odious; I will mention only one. On the same day in recent years American Steel and Wire sold at 27 dollars a share, and "Sugar" at 127, both successful industrials, one hundred dollars apart, and yet each paid the same dividend, seven per cent. We see stocks boomed above a hundred dollars a share paying no dividend, and old-time steady producers scarcely up an eighth. I do not intend to write a treatise on stock speculation except to say that stocks are high when the public own them, and low when they do not. I will dismiss this phase of the question by saying that at least one life insurance company has clear enough vision not only not to invest in stocks but to advertise the fact as a further proof of reliability.

The investor who begins to trade in the stock market has generally been dissatisfied with his returns elsewhere. Possibly he dreams that he can make a fortune without effort or delay. At the start his mind is clear, and he is cautious, for he has heard that the stock market is a wrecker. Investing in small amounts of stock in proportion to his capital, and by the aid of "beginner

luck," he generally does well at first. Success makes him bolder; he takes greater risks until the inevitable day comes when his losses appear, and he is now working not to make a profit, but as he states, to make up his losses; then he "will quit." He is living in a world saturated with false news; all avenues are tainted; the newspapers, the market gossip, the rumors put out are for the purpose of deceiving him. Things go on from bad to worse; he is losing more than he can afford, more than he can hope to restore by years of hard work. He loses all interest in society; he cannot eat or sleep; he prowls down at daybreak to get the morning paper to see what has happened over night. He loses interest in everything except market quotations. No morphine habitué is more tightly held; he has a full developed attack of "tickeritis."

I have long held the theory that the constant ticking of the instruments in a broker's office throws the majority of traders into a state of self-hypnosis, in which they become automatons, invariably with unerring instinct doing the wrong thing. They are in the position of the speculator in "Rogers' Brothers in Wall Street," who "was a bull at the wrong time and a bear at the wrong time, and a jackass all the time." I do not know how to explain this deplorable condition of the mind on any other theory. It is well known in medicine that constant revolutions of light before the face will effect the mind terribly. Patients have been able to throw themselves into a hypnotic state by watching the light from revolving mirrors. Why should not the constant ticking have the same effect on the brain of the trader through his ears?

Men in this condition seem incapable of independent thought or action; their judgment and self-reliance are gone, and their state is deplorable indeed. When in this shape often small losses have an undue effect; men have been known to commit suicide grieving over losses that in other lines of work would have seemed trifling.

It is most unfortunate that such an ideal way of doing business should be so clouded; the great security market should be a place where honest value should control the prices. We may read in a leading magazine, articles on control of cities for individual benefit; this is nothing to the control in the stock market. The public, instead of being in command, is as some great elephant, unconscious of its own strength, trying to solve the movements of its keeper. Only occasionally does it break loose; ordinarily it is a well-trained animal, ready to perform for its master's benefit. I do not think the public is wholly free from blame in this matter; it approaches stock trading as a gamble, not as a business, and makes no attempt to learn even the rudiments of the traffic. Hence over every broker's office should be inscribed "Abandon all hope ye who enter here." I do not wish to imply that brokers are dishonest in their work; on the contrary, no more reliable class of men exists, and no one deplores this state of affairs more than the average broker.

As in real estate, there are men who make money in the stock market, but their percentage is remarkably small. I will quote the words of a prominent broker who has been a member of the New York Stock Exchange for many years; he has had a large clientele, principally political in nature, of which the public has the impression that they are successful traders. In reply to a query as to whether he ever had a customer who had made a fortune in the stock market he replied: "I have been on the street for over forty years, and in that time I have never had a customer make a fortune out of it. I have heard of such men, and I have had clients make money for a time, but in the long run I have never personally seen a fortune made. I would not like to say whom I have traded for or how many thousand customers I have dealt with." In reply to the question as to the losses made by his customers, he replied: "Don't ask me that question. That is the sad side of my business. The lives I have seen ruined, the defalcations committed and the suicides. If I were a younger man I would try for some other business at once. I have learned to hate the sight of a new face coming into my office, for I know what will happen. There is a steady stream of customers through the front door, and a corresponding one out of the back door in every broker's office. I try to be conscientious in this matter; I encourage no one to trade. I issue no market letters, and if asked, I express myself as I have done to you. If my customers trade, they do so on their own responsibility, not on my advice or solicitation." Possibly not all brokers are as frank as this one, and perhaps not even this man at all times, for I had called on him to inquire about the suicide of a friend who had lost his fortune trading through that office. This is the bitter, undiluted truth, and the stock exchange recognizes this fact itself; for if a broker or corporation offers to guarantee success in trading, such statements are stamped as prima facie evidence of fraud, and if the offender is a member of an exchange, he stands in serious risk of being expelled.

As we are talking rather of permanent investments, let us take the history of any stock on the market; it is immaterial which one, and see how steady it is as an investment. As I see the engines of the Baltimore and Ohio as I write, I will select that stock; any other would do as well for illustration. Years ago this stock was the pride of Baltimore; it was as invulnerable as the Rock of Gibraltar; but it sold from 100 in 1892 to 9 in 1897, when it fell on evil days and went into the hands of a receiver; there was nothing in its annual statements, however, to foreshadow this catastrophe. The road was reorganized, the common stock made the preferred, and new common stock was created, $40,000,000 in amount. Starting at practically nothing, this stock was run up to the enormous price of 120 in the recent boom, and $80,000,000 more was issued. The stock has now fallen back to the neighborhood of eighty dollars. I do not quote these fluctuations in any spirit of criticism; I do not pretend to say how far the directors of this road have discounted future prosperity, but certainly it is only fair to say that the owners of the common stock of this road have seen some extraordinary moves in the past twenty years, from prosperity to failure, and back again to prosperity.

As is the problem in real estate, the point arises as to our ability to read the future. Are hard times over forever? Will railroads never go into bankruptcy again? We all truly hope so, but we get no comfort from the study of the past. Railroad directors seem at last to have learned wisdom, and we will probably see no such terrific swings of the pendulum again.

From this criticism of stocks I will exempt such securities as railroad bonds; in reality mortgages on all the road owns, they have always been cared for carefully, in every reorganization, even in "Reading, the much reorganized" these securities held their value

largely, and seem as permanent as anything mundane can be.

This is the subject of trading with legitimate brokers; when it comes to irregular schemes, "syndicates," "bucket-shops" the investor is indeed in stormy seas. I will discuss these sharks under the head of mining stocks.

2. REAL ESTATE.

There is nothing in common between the ability to make money and the power to keep it. These faculties are separate qualities of the human mind, often associated but not necessarily. It frequently happens that a man is a producer of wealth, but is totally unable to invest it properly, while other men have the unhappy faculty of being wretched producers, and yet most sane and far-sighted in their investments. Hard as it is to acquire wealth, the power to make investments that are permanently profitable is rarer as a gift; the maxim "Three generations from shirt-sleeves to shirt-sleeves" illustrates this truth. As if natural conditions were not enough, American laws have been framed to scatter wealth, not to concentrate it. A man is not allowed as he is in England to protect his descendants indefinitely, while the law of primogeniture is unknown. Tons of paper are consumed yearly in the honest effort of telling how to make money, while only an occasional feeble voice is heard on the question of investment from an impartial basis.

The School for Experience in Making Investments has a hard course, where each scholar learns little from his fellows; it seems to be necessary for each to learn his lessons actually with his own experience as the private tutor. The fly confidently treading on the edge of the fly-paper, gazing complacently into the faces of a thousand dying relatives and friends is not more heedless of his own chances of entanglement than the average investor.

To many men the problem of investments is a hollow mockery. Through each year they have wanted to make them, but an astonishingly large percentage of the annual receipts have wandered back into general circulation. The average man makes his investments with his butcher, his baker and his grocer. So that when the business man has a chance to draw his breath and look around, realizing that at last he has something acutally to invest, earned by the sweat of his own brow, it is a proud moment that brings dignity and satisfaction to his soul. Now is everything sunny and bright on his side of the shield; as a rule, he little realizes that storms may come unexpectedly to sweep away the accumulations of a lifetime, possibly even in a night. Nothing in human experience is more discouraging than unfortunate investments; it paralyzes future effort and embitters declining years.

In looking over the field of investment we see nothing so conspicuous as real estate. A large part of the advertisements in our daily papers are of this nature, while the average man in his rounds has the subject constantly before his eyes. This is the form of investment that appeals to the conservative investor; he sees the fallacy of any "520 per cent." returns, and he believes, as many economists have taught, that real estate is, as its name implies, the real wealth after all. Henry George built his doctrine of "the single tax" on the permanency of such values; even the law of the land in accepting landowners as security for bail, stamps it as the most definite form of wealth.

When we come to study, however, the actual facts in the case, the desirability and stability of this form of investment are not so clear. To illustrate this I will cite some types of the difficulties of making profitable, permanent investments in real estate.

Let us go back to the days before the great advances of the nineteenth century began, and see what chance the ordinary investor has had in the advance in real estate prices of the past sixty years. If we can place a finger on any one year which marks the modern advance, we might select the year 1840 as the starting point in modern industries; the panic of 1837 had been followed by a period of expansion and advancing prices; railroads were being introduced; a revolution was starting in the iron trade; the millrace was being superseded by the steam engine, and the Conestoga wagon by the freight car. The telegraph was binding the country together and the first American life insurance company was launched. When we think of those days from the standpoint of the real estate investor, at once, the names of Astor, Goelet and Girard come to our minds, for the estates of these men were tremendously increased in value from the rise in the value of land, and we wonder what our "forebears" were dreaming of to let such golden chances slip through their fingers. Where are the fortunes of the tens of thousands of real estate owners of this period? Why did not their investments receive the "unearned increment" so deplored by Henry George? The investments of Astor and Girard were successful, so we hear much of them, for, as Americans we are particularly anxious to talk and dream of success; we hate failures unless they are so colossal that we derive melancholy satisfaction from their size. I will tell the story of the third richest man in America and his real estate investments, the first time it has ever appeared in print. George Howland, of New Bedford, was the leading whaler in the world; his ships covered the seas from pole to pole, and the yellow oil crystallized into golden coin on his wharves. He seemed as far-sighted as Stephen Girard, whose friend he was, and he realized fully that the business of catching whales was expensive and uncertain, and at the best only temporary. He did not live to see the introduction of petroleum, but he prophesied a substitute for whale oil, and he prepared for it. The millions that he made, he withdrew from his business, determining to invest them in real estate. This was about the year 1840, the period I have cited. Standing next to Astor and Girard in point of wealth, and seeking only conservative investments, it would seem that with his native shrewdness that he had an easy task before him. New Bedford, his native town, was old and well settled; he saw that the coming loss of her principal industry would probably check her growth, and he started on his search. Finally his selections narrowed to three definite locations, New York city, the suburbs of Philadelphia, and the lake region of central New York state. Howland studied real estate conditions in New York city carefully; there had been considerable advance by 1840, and the city had spread out to a considerable extent. To do Howland justice, we must remember that the growth of American cities, especially of New York and Chicago, have no parallel in the history of the world in the same space of time. In searching the literature of this period for predictions as to New York's marvellous growth, I have been unable to find any prophet who saw the conditions aright. The change and development of the past sixty

years was undreamt even by our poets.

Then Howland came to Philadelphia, for he was a member of the Society of Friends, and interested in a Quaker college recently started at Haverford, a village nearby. He thought seriously of buying great tracts in this region, but he found less chance of future improvement, for while the land was not expensive, it was rather poor as farm land, and suburban life as we know it today was entirely undeveloped and unsuspected. There was nothing in the range of human experience up to that time that pointed to such land as an investment.

Howland had the idea of a Chicago in his mind; he believed that the west would develop, and there must be some central distributing point. Unfortunately in 1840 the real Chicago was in as remote a region as Sitka is now, while Ohio and western New York seemed to be the land of promise. At this time railroads were still playthings to be viewed as curiosities, while the Erie Canal held the center of the investment stage as the engineering marvel of the time. In central New York state Howland found a land beautiful enough to be called "the promised land." From this lake region were being shipped great quantities of grain, cattle, plaster and garden products down the Erie Canal to the cities toward the coast. At one spot in particular, Union Springs, Cayuga County, New York, there were wonderful mineral springs, plaster quarries and other natural resources, besides a little settlement of "Friends." Howland selected this place as the most probable point for increase of values, and invested a vast estate, intending by this sudden move to make Union Springs a metropolis of the west. In the light of our later knowledge this seems ridiculous, but judged by the knowledge of that time it seemed to be a very rational move. The revolution in the industrial world came rapidly on, sweeping away old fortunes and making new ones. George Howland died; the real west came with the real Chicago, and Union Springs was forgotten almost before it was fairly started. Its industries waned, the palaces Howland built for his children fell into the hands of local David Harums, and the great fortune melted as imperceptibly but as effectually as snow before the summer sun. Of the two other spots half-selected by Howland little need be said; we all know what happened in New York city, while the land at Haverford lay in the finest suburban region, increasing many hundred per cent. in value. This is the story of a clear-headed real estate investor of 1840, who had made his own fortune and had tried to establish a permanent fortune for his descendants.

For one successful investor in real estate at this time there were fifty thousand unknown losers. This is only natural when we consider the shifting details of American life, with the succession of industrial revolutions.

It may be justly argued that all this happened sixty years ago, when the business men of the time were ignorant of what was in store for the country. Now we have the railroad, the telegraph, the telephone, the trolley, the use of electric power and scientific business methods. The question still remains whether it is any easier to read the future than it was in 1840. As an illustration, let us take the most recent real estate operation on a large scale, of which I know, which has been a success. The great house of Drexel invested several millions of dollars at Overbrook, near Philadelphia. Here they planned and built a suburban town; the tract is convenient to the city, and in the best location; the houses were carefully built, and yet not extravagantly, while many excellent ideas were worked in, such as heat, light and water for every one from a central plant. Backed by the prestige and resources of the Drexel estate, everything was carried out to the smallest detail. It was a real estate investment under the most ideal circumstances. As a town Overbrook is a charming place in which to live, as I can testify, having lived there five years, and yet it has not yet proved a wonderful investment for the estate. I was told by the man who has the credit of originating the idea, and who engineered many of its financial features, that "it took a stout heart and a long pocketbook" to put it through.

These are instances of large investors who can control to some extent their own destinies. What of the smaller investor? Take the average estate owning property scattered through a large city, and unless it is very exceptional it will be found that taxes, water rents, repairs, loss of rent from buildings standing idle, and the natural wear and tear, will produce surprisingly small returns. In many such estates a net return of two per cent. is all that can be expected, a sum no larger than that given by trust companies for money placed on deposit. As the years roll round these properties are apt to experience the deterioration of dying neighborhoods, where a cheaper and cheaper tenant must be obtained. We hear but little of these investments; we are not interested in them, and their owners do not boast; in the true American spirit "they grin and bear it."

In farmlands the conditions are far worse, at least in states east of the Mississippi. The influx into the cities and towns of the younger, brighter element from the farm has killed investments here. Farm land in the eastern states is not as valuable as it was years ago. The amateur farmer finds the reason for this very quickly; it is well illustrated in the story of the "gentleman-farmer" who asked his guest whether he would have milk or champagne to drink, and not to hesitate as to the choice, as they cost the same. The practical farmer can only make ends meet by the most rigid economy. Hence real estate here must respond to these conditions.

There are, of course, men who make money in real estate by quick purchases and sales; I am speaking of permanent investments that must go on year after year. A special training seems to be of no value; for example, one of the brightest writers on a New York journal recently died, and I was appointed his administrator. He was one of the leading authorities on finance, building associations and sociological problems, and he had studied the problem of real estate for thirty years, covering the entire country in his researches. Situated so that he could invest from time to time, he died possessed of land from Brooklyn to Florida, and from Minnesota to Texas. Every property had been selected with the greatest care, the lines of travel and extension of business all considered. He bought invariably in periods of depression; each investment was carefully watched and improved as needed; he caught the expected improvement every time, and yet in no case will his estate get out of his properties more than he put in them. If such a far-sighted man, with many facilities of investment, not possessed by the average investor, simply comes out even after thirty years of work, what chance has the average man?

I do not include in the scope of this article the question of owning one's own home; this is scarcely a business proposition; here the sense of comfort and security must

be a large part of the return. But it is foolish to buy a home unless it is the purchaser's intention to live in it permanently. Otherwise the depreciation from age, wear and tear, and the competition of newer houses will make it an unfortunate investment. We must remember that no dwelling improves in value as the years roll round. The improvement in value is simply in the land on which it stands.

In the language of the stock market the owner of real estate must be always a bull; he cannot regulate his surroundings, the vagaries of business booms or depressions, yet he must be dependent on these when he wishes to sell. It is impossible for him to look into the future and read its secrets. Unexpected events, changes in business methods, consolidations, inventions, new ideas in hygiene, the invasion of railroads are only a few of the countless factors. A man who can say that he can look into this rapidly shifting maze and see positively what the future holds in store for him has claimed all the attributes of an old-time Biblical prophet.

3. MINING STOCKS AND OTHER GET-RICH-QUICK SCHEMES.

There are all grades of investors, from the conservative man who is satisfied with the smallest returns, to investors "with mechanical turns" to whom patents, electrical contrivances and freak enterprises are attractive, and finally, there are reckless investors who are engaged in the impossible task of getting rich in a year or two. To this latter class mining stocks instinctively appeal, although truthfully mining stocks are not in such good odor as they were some years ago, for too many strong boxes are papered with certificates of dead and buried mining enterprises. Still there must be a certain market for these schemes, judging from newspaper advertisements and circular letters.

The man who makes a fortune buying mining stocks is in the same class with the man who made a fortune in lottery tickets. Not that there are not good mining stocks, which have crept up in value until tremendous profits are shown; but these securities have grown scarcer and scarcer in the market, until now they are as rare as proverbial "hen's teeth." There are many excellent reasons for this disappearance of good mining stocks; the ones now valuable are closely held, while the field of mining has now been fairly well covered in the Western Hemisphere, and miners are now content to approach propositions, ignored years ago, that cost more to work and bring in far less return; for example, some recent mining companies propose to spend several million dollars before there is any chance of a return, and even then, if successful, the mines will be made profitable only by the use of improved methods and the latest machinery.

Again the good mines, as a rule, never came east for capital; they were snapped up often right at the mouth of the mine. The West will struggle to keep a good thing at home as eagerly as does the East. Hence the cream of these investments has stayed in the hands of the men best capable of knowing their value. Even in these good mines there is some uncertainty. It may be the drop in value of the metal, as recently seen in copper and silver, or it may be dishonesty on the part of the local managers. These men, often of a roving class, are frequently left in absolute control by Eastern owners; this dishonesty may not consist in actual theft or incomplete returns of metals mined, but in taking advantage of local mining laws. In all mining states certain conditions must be complied with such as working of lodes within certain periods of time; if this is not done, the mine is lost to the owners. The local men, knowing this condition, often resort to some such trick, permitting friends or companions to seize the forfeited mine at the proper moment. At this very time there are a number of such disputes going on in Western courts.

The prospector, being uncertain of the wealth he may find, always makes the capitalization of his enterprise as large as the public will stand; hence the indebtedness is generally excessive and uncertain. Again, with a shrewd knowledge of human nature the price of most mining stocks is started at a few cents. This serves a double purpose; in case of loss for some occult reason the failure does not seem so severe to the investor, while it enables him for a hundred or a thousand dollars to own thousands of shares by which plan it must appear that his dividends will be heavier.

No compend will ever show the millions lost in mining unsuccessfully. A prominent resident of Denver who made a fortune in Colorado has stated after years of study and investigation that he thought there had been as much money sunk in the hills of Colorado up to the year 1890 as had been taken out.

When it comes to fake mines, their number is as limitless as the sands of the sea. Take up any newspaper, stop any postman on his rounds, and the results will be astonishing. Anything and everything that will bring in money will be promised. "The price of the stock will positively be raised on a certain date," "dividends will be paid," while treasury stock is being sold and "a fortune in a year" are the least things in sight. These advertisers are skillful students of human kind; if the investor knows enough of the genuine mines to realize that they are not peddled over the country in this way, he is taken aside to meet some "colonel" or "governor" from the west, who, in breezy sombrero volubly offers to take the investor into a good thing, provided he will not try to bring his friends in too. "Such a mine is not advertised, of course," the capital is complete, excepting a trifle, and at this point the "governor" wonders gently how much the investor "has lying around loose." Fortunately he happens to have just that amount of stock, and not one share more. Some one has died or failed, and hence this scrap is left undivided. Appeals from the victim to let his friends in, too, raise a storm of protest from the governor, but, after all, he has a big, generous heart under his ample vest, and before he goes west he generally has everybody in sight "hooked up." The subsequent experience of these fortunate investors in getting returns would make good instructive reading; generally it is buried deep in saddened bosoms, and the world gets no benefit.

I have had the opportunity of studying the career of four eastern investors who had the reputation of making money in mining. They were "tenderfeet," and, of course, not originally practical miners. Three of the four in different states, unknown to each, and separated by thirty years of time, came to the same conclusion. It was that the way to make a fortune in mining was to sell supplies to the miners. I will cite only one example, the man who made a fortune during the period 1879-81, went to Leadville in the summer of 1879. He entered the camp through a narrow gorge; he studied this gorge, for it looked interesting. As Napoleon studied the

weather records of Russia back fifty years before setting out for Moscow, he looked up the local weather record and found that in the memory of man, this gorge was snowed up every winter. He went to Minneapolis and shipped thousands of barrels of flour into Leadville and sat down to wait for a snowstorm. One day it came, and within a week a vigilance committee called on him and offered an excellent price for his treasure. He made that winter more money than any miner in Leadville.

Patents, especially of an electrical nature, are sought occasionally by the investor looking for speedy returns. We are a nation of patentors, and hence this is but natural. But even Edison, who has taken out nearly a thousand patents, and hence should know, has stated that it takes a fortune to introduce a patent, and patent laws are so unprotective, he prefers to undersell rather than fight an infringement.

Other fake enterprises are so varied and numberless that no general description will fit them except the statement that common sense must dictate the decision. The glittering bait of twenty, fifty or five hundred per cent. returns are too attractive for many minds, although generally a little search will show the hook. We all have a little of the gambler's instinct in our hearts, even when we know the chances are against us. When a body of men offer some investment that returns tremendous return, we must pause to study their philanthropy and our own good luck. Suppose the situation were reversed, and we had such a golden chance, would we share it with total strangers? Here is a body of promoters who will give us the thick, rich cream, and keep only for themselves the blue, skimmed milk! Is this plausible, business-like and sane? As individual examples are more interesting, I will cite the history of the E. S. Dean Company, one of the most remarkably successful swindles ever attempted. Their profits ran into the millions; where they became known, they seemed able to create a craze. For example, one town on the Hudson so completely emptied the moneys out of the banks into their offices that the local bank presidents went to New York to see what sort of an enterprise it was that was draining their vaults. The shower of gold grew so heavy that it frightened these schemers, and they ran away while the sky was still clear; their mail fell into the hands of the police for want of better directions, and thirty thousand dollars in cheques and drafts were returned to investors from one Monday morning's mail. Even after the affair was fully exposed in the papers, the shower of money continued to flow in. This syndicate was supposed to trade in the stock market and paid a biweekly dividend, generally of five to ten per cent. For several years this dividend had been kept up, through panic and boom, until the original investor received several hundred per cent. more than he paid in. One early investor sent five hundred dollars and received over a thousand dollars back, while he still had his original deposit intact. Newspaper advertising was avoided, and the good word was passed along, simply by the praises of the fortunate investors. But these promoters knew human nature; the man who drew out twelve hundred dollars scraped together five thousand dollars and put it back, besides getting in countless friends. Facts are stubborn things; here was a concern that had existed for some time; it had weathered the sudden "Venezuela panic," and the precarious times that followed. Every criticism was met and answered; it was acknowledged that "the syndicate" did not make its money with the regularity with which it was paid out, but it was explained that if fifty per cent. were made in one week and paid it out, the clients would expect fifty per cent. every week; so that that amount was paid out, what in their experience was a fair percentage of the yearly earnings. The explanation of the need of outside money was ingenious; it took large sums of money to manipulate the market, and the syndicate got the amounts necessary by the offer of handsome returns. Confidentially each one was told that the syndicate's own returns were far greater, and while they could, of course, fail at any time, it would destroy any future growth. Some years before the "Grant and Ward" plan had been exploited, in which exorbitant interest was paid out for the use of funds to complete alleged government contracts, when in reality the sums received were simply held and paid out from time to time in hopes of coaxing further deposits. This scheme had ended in failure and disgrace. The Dean plan applied it to the stock market. The manager of the syndicate would ask, "What test do you want of our honesty and soundness?" Of course it was the proof that they were trading in the market in such amounts, and with such success that the dividends were warranted. The victim was given a letter of introduction to the principal brokers of the syndicate, prominent members of the New York Stock Exchange. Here he would be given carte blanche to look over the accounts of the E. S. Dean Company, and see figures that astounded him. Assuming that this firm of brokers were honest men, certainly the Dean Company were rolling in wealth, and remarkable from an investment standpoint. There was no reason to doubt the word of this brokerage firm; it was an old established house, and bore a name highly honored in New York. In the disclosure which followed the flight of the Dean syndicate this firm was expelled from the exchange, while the apparent head of the firm proved that he knew nothing of this rascality, having really retired some years before from active participation in its affairs. Certainly, if investigated, this fraud was prepared for the most rigid examination. Hence, *it is not always possible to put the finger on the fraud while it is in existence; the only possible safeguard is a persistent attitude of disbelief.*

A more brilliant plan, but less successful, was the "Guaranteed 24-per cent." idea. A well-known professor of mathematics at an Eastern college invented a plan of working the market by the use of a machine which looked like a cash register. A boy of ten could not fail of success in using it. This unsuspecting professor fell into the hands of schemers, who used his ideas to get victims; his plan seemed to be a fair one. Select any active stock at random, and in two months' records, taken from the official list, the professor could show a nice profit at no further trouble or expenditure of grey matter than pushing a few buttons. The swindlers, however, used this scientist as a cloak, and developments showed that while he was honest, they were only a fragment of the larger Dean swindle.

Because honest men are found in an enterprise, it is no guarantee of its righteousness. Honest men are often the easiest to deceive.

4. LIFE INSURANCE AS AN INVESTMENT.

If the criticism is made that these papers are too pessimistic in tone, I would reply that a spirit of the strongest scepticism should pervade the attitude towards any business proposition. It is better to be pessimistic in ad-

vance, temporarily until demonstrations are proved, than pessimistic permanently afterwards.

Fortunately, life insurance is a subject on which I can write with more enthusiasm. The development of actuarial science, the system followed in investments, the promptness with which losses were paid, and the comfort and prosperity that followed are making this business so popular that its growth has astonished even the officers of the various companies. The conception of life insurance is a modern one within the lifetime of the average man. The oldest American company only dates back to 1843; probably as yet we have no real conception what the future holds in store for this form of investment.

But as in everything else, there are all grades of excellence in life insurance companies. I will speak first of the so-called "fraternal orders." I speak from experience of these, having been a member, and examining physician for several organizations. About 1870, as regular life insurance emerged from the cloud of doubt and actual hostility, under which it had been growing, life insurance seemed to be "a good thing," but rather expensive; so that here and there over the country bands of men grouped together to get the direct benefits of insurance, without the expense of offices, officers and agents.

Possessing no actuarial experience, probably ignorant that such computations existed, they collected simply enough to pay the death benefits as these occurred. This seemed to be the ideal form of life insurance, and for a few years all went merry as the proverbial wedding bell. About 1880 it was found that the receipts were not sufficient to meet the claims, and the dues were raised in a haphazard way to meet the expenses, but by some freak of finance and science there seemed to be no limit to these advances, for they always left the organization in trouble. As a result these orders died by the hundreds. At last, burdened by pressing necessities, the companies surviving have recognized that the methods of doing business and the rates of the so-called "old line Companies" were correct, and have tried to reorganize on this basis. Unfortunately, thousands of men on these ships have not paid their passage, and cannot be made to do it now; hence these companies are millions in debt, based on the ground of claims which will mature against them in the future.

The largest of these orders (Ancient Order of United Workmen) was compelled to make a tremendous jump in rates recently, which is largely put on the shoulders of men above fifty-five years of age. It seems unfortunate from a fraternal basis that so severe a burden has been put on these older members after they had borne the heat and labor of the day, and had reached an age when regular life insurance is difficult and expensive to procure. It has been denied by the officers of this organization that it was the intention "to drive the old men out," but certainly the principal burden has been placed on them, who are least desirable from an insurance standpoint, and, being workingmen, at an age when their own earning capacities are reduced.

While examining physician for this order I kept yearly the records of deaths for my district, from which I computed that no one who died during my researches had paid in over seven hundred dollars, while each death had drawn on the treasury to the extent of two thousand dollars. I was never able to get from any member of my lodge an intelligent explanation of the sagacity of this method of doing business. To my uninitiated mind it seemed to me that each death simply plunged the organization deeper into debt. Pursuing this problem still further, I found that if a man had joined the order at its organization, over thirty years ago, and had paid dues to the present time, he would scarcely have paid in two-thirds of what he was to draw out. In other words, such an organization requires a clientele of Methuselahs to draw on to keep their finances in shape. Yet this order has paid out $120,000,000 in death claims, and is regarded as the most conservative of fraternal orders.

I joined this order at twenty-two, imperfectly realizing that it was only temporary in character, but I argued, "while it lasts, it is worth what it costs." Now I believe that I deceived myself, for, at thirty-seven, fearful of its future, I drop out and take regular insurance in its place. Had I taken some form of twenty-payment insurance I would be two-thirds through, while now I start afresh and am compelled to pay fifty per cent. more for the same thing than I would have paid at twenty-two. As I lived to withdraw from my order, my money has actually been lost there as far as it benefits me. To win I should have died early.

When it comes to regular insurance we find a business that is built upon a science. Everything has been worked out until all element of risk has been eliminated. Actuaries, financiers and economists have raised this superstructure, but the foundations were dug and laid by the medical profession. Medical records have supplied the data for this advance; it was the physician who brought to this business the exactness of a profession, and to the medical men early in life insurance that a large proportion of the credit of rearing this structure is due. Nor are the present medical men idle; even now they are working out the problem of the insurance of the "substandard life," realizing that every life has some insurable value.

As an examining physician I am more interested in the application and examination of the applicant, a subject that every one interested is apt to gloss over. Some years ago I wrote an article on the subject of more protection for the candidate for life insurance. I cited many cases coming to my knowledge where, from ignorance of medicine on the part of the applicant or from carelessness on the part of the examiner, many excellent candidates were turned down by the companies. I advocated and still urge that the man about to be examined, should, if doubtful of his passing, go over his own case with his family physician. Getting insurance in most companies consists of passing an examination on medical subjects, and it is astonishing how mixed applicants become in these examinations, with the best of intentions. Again and again have I had to go to the rescue of patients and help them explain wild statements on medical topics. For this reason I feel that a company is taking an unfair advantage of the applicant when the application and "doctor's examination" is made a part, and often the basis, for the subsequent contract. I will quote a few of these applications which I think are especially exacting upon the applicant:

"I hereby warrant and agree—That all the foregoing statements and answers, as written, and those contained in Part II (the medical examination), made or to be made to the medical examiner, are *full, complete and true*, that no statement has been made to or by any agent or representative of the company contrary to or modifying any of them as written, and that Part I and II of this application *are offered to the company as a consideration for any policy hereby applied for," etc.*

Here the applicant has bound himself up in sweeping

pledges in such a contract as this.

Here is another application which furnishes a larger number of chances for errors.

"*I hereby agree that this application* and the policy hereby applied for *taken together shall constitute the entire contract* between the parties hereto; that *the statements and answers* herein *are warranted to be true.* I have not been declined or postponed by any life insurance company or received a policy different in form from the one originally applied for, nor *have I been intemperate or had any serious illness or disease,* except diseases incident to childhood, and there has been no history of consumption or insanity in my family, *i.e.,* among parents, brothers or sisters, uncles or aunts," etc.

I could multiply these instances indefinitely, but it is unnecessary. I trust the day is not far distant when all companies will see their way clear to strike out such restrictions as unjust and unnecessary. Take the problem of intemperance, of what does it consist? I am sure that fifty men might give fifty different answers. I have never examined a man who honestly thought he was intemperate; so who is to decide? It opens the way to litigation, and should be stricken out. If a company thinks a man is intemperate, or likely to become so, reject him, but do not admit him, and then put on him this uncertainty.

Again the tendency of the day is towards liberality as to restrictions; formerly the companies were unwilling to insure against suicide, now the average restriction is only for a year or so, while one company has realized the tendency ahead of its competitors and issues a policy incontestable from any cause from the date of issue, with no restriction placed on occupation, change of residence, service in militia or the navy. This is the ideal form of policy, which will be adopted by all companies, probably in time. As physicians, we realize the injustice of any restrictions at all. Suppose a man in the delirium of typhoid fever throws himself from a window, why should his family be made to suffer? Or, as in a recent case, a man contracted measles from his children; in his delirium he slipped out at night and drowned himself in a brook. His policies, with restriction from suicide for a certain period, exempted the insurance companies from payment. Occasionally we see an old-time restriction lingering in an application such as the following:

"I also further agree that *if within five years* from the date hereof *I shall indulge in the use of narcotic poisons, malt or spirituous liquors to such an extent as to obviously impair my health,* or to induce delirium tremens, *then and in either* case *the company may,* within said five years, but during my lifetime *cancel the policy* herein applied for, and thereupon shall be absolved from all liability upon the same except only it shall pay the amount of the then reserve upon the same, etc."

This restriction will some day be quoted as a curiosity in the history of life insurance.

The following is the best form of application yet devised; it does not make the contract depend on the truthfulness of the statements of the applicant; it has no restriction as to suicide, residence or occupation, and throws the responsibility of the selection upon the officers of the company:

"I agree on behalf of myself and of any persons who shall have or claim any interest in any policy issued under this application as follows:

I. That inasmuch as only the officers at the Home Office of the company have authority to determine whether or not a policy shall issue on any application, no statements, promises or information made or given by or to the person soliciting or taking this application for a policy shall be binding on the company or in any way affect its rights, unless such statements, promises, or information be reduced to writing, and presented to the officers of this company in this application," etc.

Here is no guarantee of truthfulness or completeness on the part of the applicant. No mention is made of the application being made a part of the contract; in fact it only expresses the desire of the applicant to have a policy.

What is the mysterious alchemy that has kept life insurance companies afloat through good times and bad for years? Have they solved the question of perennial youth in the business world? Let us take the securities of some great company and see what has been done.

One of the larger companies holds about four hundred million of securities; it holds mortgages to the amount of twenty-five million dollars; it owns real estate to the value of twelve million dollars. It has on deposit in trust companies and banks twenty-two million, and has loaned to policy holders twenty-eight millions. The great bulk of its investments, however (two hundred and forty-seven millions), is invested in bonds of railroads, cities, states and governments.

Of the real estate owned for the company the majority of the properties are for office purposes; for example, the home office on Broadway is valued at five millions, and the combined value of these office properties is over ten million dollars, leaving less than two million of dollars of nearly four hundred million invested in real estate as an investment. I might have cited this instance in my criticisms on this form of investment, for surely with the experience that comes from investing millions more would have wandered in real estate, if it had been considered desirable. I will pass over the question of government bonds; often investment in them is obligatory to satisfy the various governments, as the rate of interest is low. Over one-half of the Company's funds ($205,000,000) are invested in railroad bonds. Undoubtedly, this is the ideal form of investment. A railroad, as Artemus Ward would say, wanders from place to place; it is not dependent on local conditions or influences; it receives the broad impetus of the business of the world. Moreover, in reorganizations of roads, if such be necessary, such bonds demand and receive their full share of value. The basis of our financial fabric is built upon this fact. It is pleasant after wandering through such phases of deceit and doubt as the investor must experience to find some form of security that for all mundane purposes has all the requisites of permanency.

Of course, a man can buy these bonds for himself, but he does not do so, as a rule; moreover, he cannot buy them on the installment plan, as he practically does when he buys insurance. Insurance, too, is exempt from the ordinary claims of other property. No judgment can seize it; no bankruptcy sweep it away. I would go further than the average believer in life insurance and say that every legacy should be made in the form of "trust funds." It is an unfortunate thing to turn over to a widow who is in a peculiarly sensitive mental state, large sums of money for re-investment. On the contrary, all these funds should be left "in trust," or with the idea of fixed payments at stated periods. Here is the idea of an investment joined to protection in as permanent a form as the human mind can devise.

HOW TO TREAT EYE-STRAIN INTELLIGENTLY.

BY AMBROSE L. RANNEY, A.M., M.D., OF NEW YORK.

"EYE-STRAIN" is quite universally recognized to-day (by those of the medical profession who are posted in its literature) as a frequent and important cause of headache, neuralgia, sleeplessness, nervous prostration, chorea, epilepsy and insanity. This need not, I think, be argued here.

Those who participated actively in the battles that were fought out and won two decades ago (almost single-handed at times against a multitude) to establish the truths regarding eye-strain that are to-day tacitly accepted by the profession have good reason to remember the struggle and to be proud of the victory.

Yet even now an unexpected attempt to check the tide of public opinion in this direction crops out from time to time; either by some non-progressive oculist who refuses to see what has been already proven to most of the eye specialists, or by some apparently deluded enthusiast who thinks that he has personally discovered what has been known and practiced for years.

It is hard for any one familiar with this field in curative medicine to treat seriously to-day these echoes of past conflicts.

Robert Ingersoll once said that "nine-tenths of the adults in this world were like those who rode backward in a railroad train—because they never see anything until they have passed it."

So it is with some of the oculists to-day regarding eye-strain.

They recognize at last the fact that, in spite of the bitter opposition of the past, the importance of eye-strain is beginning to be awarded its proper value as a cause of nervous derangements.

They see that the medical public at large has to-day accepted what was originally made by them a subject of ridicule. They realize that this great medical discovery has come to stay; and is steadily bearing fruit by conferring happiness and health upon many sufferers that had lost hope. They are now willing to ride on the wave—but they apparently aim to appear to-day as leaders, rather than simple followers, of methods that they originally tried to smother.

To discuss, for example, at this time, at great length in medical journals, the vital importance of careful refraction of the eyes of nervous sufferers, and to represent this work as a great discovery in the treatment of nervous derangements, cannot but seem absurd to any one who has known, taught and practiced careful refraction for that end for over twenty years.

Even the "tyro" is supposed by this time to know *that the first and most important thing* in the treatment of eye-strain is to skillfully and intelligently correct all existing errors of refraction by glasses; properly and scientifically prescribed, accurately centered to the pupils, and constantly worn by the patient (in most instances) as a means of relief to that special type of eye-strain.

There is nothing new in this theory or its practice.

While it is unquestionably true that refractive work was very carelessly done years ago by many oculists, and is to-day by some; while it is true that the use of a mydriatic by the oculist was almost uncommon two decades ago, and that diagnoses of refractive errors were made chiefly by the use of the ophthalmoscope; while it is a matter of history that I personally was one of the first to fight for methods of examination that were not open to suspicion, but positive and final in the determination of astigmatism and lateral hypermetropia; while it is an acknowledged fact that the pioneers in the study of eye-strain have from the first urged upon the profession the necessity of the greatest care and the most positive methods to determine all errors of refraction and to correct them by glasses; yet, at this late date, it seems suddenly to have dawned upon a few that it would be wise to make it appear to the medical profession that no attention, or at least imperfect attention, has been paid to refraction by *those who have also studied anomalies of the ocular muscles,* as an equally important and distinct type of eye-strain.

One prolific writer of this type has lately endeavored (as it would seem) to make the medical public believe that all derangements of equilibrium in the eye muscles (*heterophoria*) are due simply to refractive anomalies (*ametropia*). He would make his readers also believe that any one who unfortunately (from his point of view), has devoted attention to the eye muscles, and who has performed tenotomies for muscular anomalies at times, has not the proper conception of scientific refractive work.

Such statements are too absurd to discuss at any length. They would make it appear that all the remarkable instruments of precision that have been perfected within the past twenty years for the investigation of heterophoria have been and are to-day of no value; they would lead the medical profession to ignore all the observations carefully made in the past by pioneers in this field regarding the effects of correction of refractive errors by glasses upon heterophoria; they would tend to throw out of existence with one sweep all prismatic glasses—because genuine heterophoria cannot exist (from this standpoint) after the proper glasses are prescribed for refractive errors; and they would condemn all sufferers from eye-strain who were not helped by glasses to hopeless misery—simply because the holder of such views had stopped at the threshold of eye examinations and refused to see the great field of further eye investigations that lies beyond.

Every one who is familiar with the scientific investigation of heterophoria ought to know this general rule, viz., *that no tests made for anomalous adjustments of the eye muscles are of any value until all refractive errors are first properly corrected by glasses, and the effect of such glasses upon the "suspected heterophoria" is carefully noted.*

I was surprised lately, when, during a conversation with a prominent physician over a patient that he had sent to me (for operation only) upon what seemed to be a case of strabismus, he said to me:

"Why, doctor, you simply ordered glasses for my patient (to be worn for a month), instead of operating upon her at once, as I requested you to do."

I explained to him that *I hoped to be able to cure the strabismus without a tenotomy,* because his patient had such extreme "ametropia"* that no one was justified in operating upon such a case until the effect of glasses upon the adjustment of the eyes had been observed for some time. A cure proved to be the final result in this case, through glasses alone.

But even in the light of such results—and they are not uncommon ones in my experience—it is as mani-

*A term that covers all types of refractive errors.

festly absurd to claim that all cases can be relieved of nervous symptoms or heterophoria without tenotomies as it would be to assert that tenotomies are always indicated.

Two cases (whose clinical histories I report here) demonstrate most positively that tenotomies alone restored them to permanent health—after glasses had been pronounced unnecessary in one case and had been tried unsuccessfully after being judiciously prescribed by an eminent oculist in the other case.

These were *most extreme instances of uncontrollable pain*. Both of these sufferers had the benefit of the best medical advice to be obtained in this country prior to my treatment of their eyes. Neither of them obtained the slightest benefit from glasses or medication; and their cases appeared to be hopeless ones, that would surely lead in time to a total destruction of health and earning capacity.

Each of these patients had suffered for many years before the cause of their pain was discovered. Without tenotomies, it is doubtful if either would have been alive to-day.

CASE I.—Severe Headaches of a Chronic Type with Frightful Exacerbations, that Had Yielded to No Previous Treatment.—Dr. E., age, 44; married. This patient is one of the leading surgeons of America. For many years he had been a victim to frequent and frightful headaches, which absolutely prevented all surgical work for several days at a time. On his first visit to my office in 1896, he reported that he "had not been free from headache sixty days in the past year." For years he had tested thoroughly every form of therapeutic measure for relief of pain. The results had been absolutely negative.

Like many others he had been somewhat prejudiced against the views which I hold; and he had been strengthened in his prejudice by the statements of several oculists of prominence that his eyes had nothing to do with his headaches.

When he first came under my care, *the most careful examination of his eyes under atropine failed to show much if any refractive error;* and to this day he can not tolerate any glass with comfort, except a weak spherical glass for his surgical work, as the result of age. He disclosed, however, after some days of repeated tests and observation, a high degree of "latent" esophoria, and also some tendency of the left eye to assume a higher plane than the right eye —left hyperphoria.

Within the space of one year, I performed a button-hole tenotomy upon both of his iterni and I also lowered his left eye. Since that time he has passed several years with practically no pain; has never lost for one day his ability to do surgical work; and he has quite lately assured me that he regarded himself as perfectly cured. He is able now to use his eyes with absolute comfort at all times; and without the headaches that were sure to follow eye-fatigue, before his eye-muscles were properly balanced.

From a scoffer he has now become a thorough convert to the importance of seeking for eye-strain whenever a tendency to headache exists.

From a letter (now on file in my records) written lately by this patient to a friend, I take the liberty of quoting the following extract:

"Of the three hundred and sixty-five days of the year prior to consulting Dr. Ranney not more than sixty were free from headaches.

"I was at that time advised by an eminent authority to abandon all professional work forever; and I myself clearly foresaw the near end of my work as a surgeon, and, in fact, of my usefulness in any avocation in life.

"However, I had exhausted all the possibilities of relief generally recognized by the profession, and was in desperate straits. Like the drowning man grasping at a straw, I sought out Dr. Ranney and placed myself in his hands for better or for worse; and with a doggedness of purpose bred of utter despair of relief from any other source, I followed his guidance, until finally restored to health after fifteen long years of suffering.

"It is my firm and unalterable conviction that whatever life has been or has held for me during the past seven years I owe entirely to Dr. Ranney."

How the advocates of the view "that errors of refraction alone cause heterophoria, and that tenotomies are never demanded in the treatment of headaches," can make this case fit their theory, I cannot see. This famous surgeon requires no glasses to-day, except occasionally while operating, and always while reading, because he is presbyopic from age. His refractive error was very slight, so slight, in fact, that he has never yet been able to tolerate glasses to correct it for distant vision. He got well only when his two eyes were put on the same level in the orbits, and after his tendency toward a converged squint (latent esophoria of a high degree) had been corrected by graduated tenotomies.

CASE II.—Excruciating Facial Neuralgia, Incurable by Drugs and Leading to Suicidal Impulses.—Mr. C.; married; aged 35; hotel manager. This patient came to place himself under my care in 1888 after years of the most acute suffering that it is possible to describe. He had suffered for ten years with almost constant facial neuralgia, involving chiefly the left side. So long as the pain was moderate, he would endure it. Acute paroxysms would come on, however, very frequently and at unexpected times without apparent cause. The intensity of the pain at such times in the teeth, cheek and orbit would almost deprive him of reason until morphine could be administered hypodermically.

He was treated for some years for these attacks by a large number of the leading specialists of New York City without any relief. One of his physicians sent him to the late Dr. Loring, the famous oculist of New York, who prescribed glasses to correct about one and a half dioptres of hypermetropia and a slight degree of astigmatism. These he had worn constantly for about three years; but no appreciable benefit had been experienced from wearing them, except that he "thought he saw a little better with them." He had been for many months under the care of the late Prof. E. C. Seguin, the distinguished neurologist, who experimented upon him with almost every narcotic known. At one time, aconitia was pushed, under Dr. Seguin's personal supervision, until aconite poisoning appeared. The patient could not at one time talk plainly from the effects of this drug and the tongue and throat became almost paralyzed for several days. The intensity of the neuralgia paroxysms at times made his family fear suicide; and the patient learned to administer morphia and atropia by the syringe to himself when he felt that the attacks were getting beyond human endurance.

Throughout six or seven years of such suffering, this victim to neuralgia consulted almost every specialist of note in his vain efforts to obtain relief—but in despair over his failure, he became my patient at the solicitation of a friend who had been personally cured by eye-treatment.

On examination of this patient's eyes, I found that Dr. Loring *had given him glasses that were a full correction for all his refractive errors;* but like many other oculists, he had not investigated the eye-muscles, which were seriously at fault. He disclosed a very moderate degree of esophoria at the first examination, but later on I found him to be a victim to "latent" esophoria of a high degree. Within two months, I performed a graduated tenotomy upon both interni of this patient. His neuralgia ceased entirely within a week from the date of the first operation, and he has been entirely free of neuralgia for the past fourteen years.

About two years ago (fourteen years after the tenotomies) this patient called upon me while in New York and stated that "his marvelous restoration to perfect health by so simple and painless an operation had been considered a miracle by his friends and family." His eye-tests showed no marked change in his refraction; except that he needed a stronger glass for close work, which was ordered. I found, however, to my delight that the esophoria which originally existed and had caused all his suffering was completely relieved; and he left with the happy assurance that he had no reason as far as I could see to anticipate a return of his old trouble from eye-strain.

Case III. illustrates very forcibly that a *scientific correction of unequal refraction and astigmatism by glasses had been made for six years* in this patient without any permanent relief, or any relief to his heterophoria. A permanent cure of all the symptoms followed the correction of the heterophoria by two graduated tenotomies.

CASE III.—Nervous Prostration, with Chronic Insomnia and Mental Distress and Confusion.—W. C., aged 42, minister of the Gospel, married. First seen by me in 1899.

Family History.—Mother living, aged 84. Father was a delicate man and had headaches. One brother and one sister have severe headaches. One brother has several times broken down in his studies from eye-pain and asthenopia.

Eye Defects. Myopic astigmatism, O. D.—1.25 c.; O. S.—0.50c. Exophoria 10°. Crossed diplopia of 4° (with red glass before either eye). No hyperphoria. Adduction, 18°. Abduction, 12°. Right sursumduction, 3°. Left sursumduction, 3°. Presbyopia (uses +1.00 s. for reading).

History of Case.—This patient was never a very strong man and had always been a hard student. About six years ago he began to suffer from sleeplessness, confusion of thought, and an utter inability to apply himself to his work for more than a few minutes at a time. He put himself in the care of a prominent physician of this city, and at that time was examined by an oculist of note, *who prescribed glasses* to correct his astigmatism. These gave some temporary relief, but he soon broke down completely, resigned his position, and for many months was unable to do any work.

After a long rest, he again took charge of a church, but his insomnia soon became so severe that an extended vacation was necessary. Since that time, by the most regular habits, careful diet, and daily exercise in the open air, he had been able to keep his position, although he feared a collapse at any moment. Finally, his loss of sleep, distress in his head (although he had no actual headache) and confusion of thought became so constant that he was again on the verge of resigning his position when he came to me for treatment.

Treatment and Results.—The treatment of this case consisted simply of two graduated tenotomies for the relief of the exophoria, and subsequently a reading-glass to correct his presbyopia. The result of this treatment was most gratifying. A report received from the patient within three weeks after his first tenotomy states that he "nows sleeps well, and has great relief from the distress which he has so long experienced in his head."

For fifteen years past he has been doing his work with comfort, and with no return of his old symptoms. He sleeps well, with the exception of an occasional poor night after an unusually trying day's work. He has taken no medicinal treatment.

During a visit at my office within a few months, he stated that "he considered himself entirely cured of his old troubles."

Case IV. illustrates that *a full correction by glasses of the refractive errors* found in this patient had been tried for several years without any permanent benefit or cure of the muscular anomalies (heterophoria).

Tenotomies restored her to perfect health. The effects were permanent.

CASE IV.—Nervous Prostration, Headache, Insomnia and Confinement to Bed for Nearly One Year.—Mrs. W., aged 55. Married.

Eye Defects.—Hypermetropia, +1.75 s. Presbyopia (uses +4.50 s. for reading), Esophoria, 7°. Adduction, 23°. Abduction, 3°+. Later on she disclosed: Right hyperphoria, 3°; right sursumduction, 6°+; left sursumduction, 2°—. Has worn glasses for distance and close work for years.

History of Case.—This patient is the wife of a prominent physician; and, as such, has had the benefit of the best medical talent of the state in which she resides.

She had always been a delicate woman up to the time when my professional opinion of the case was asked. For a year or more before I first saw her she had been a victim to nervous prostration and confined most of the time to her bed or room. Her life had been despaired of during this interval at times; and the case seemed to present problems in diagnosis which puzzled the best medical men whom she had consulted. When she had gained sufficient strength to allow of her being moved with safety, her husband was advised to take her to a Southern climate. On her way to Florida, he was advised to consult me in reference to the case, when he passed through New York.

When I first saw this patient she was in a state of extreme physical and mental depression, was unable to walk for even short distances without great fatigue, was sleepless and despondent, and was brought to my office in a carriage from a hotel not far from my residence.

Treatment and Results.—At the first visit, prisms were given to relieve the esophoria, and in five days a graduated tenotomy was done on one internal rectus. The patient began to feel the benefit of this step from the first. The second day after the tenotomy she reported that she had walked a mile and a half—a thing she had not done for over a year. Five days after the first tenotomy, a second one was performed on the other internal rectus, prisms having been worn in the meantime. Two days following this, the patient walked five miles, visited an art museum in the morning, and attended a theatre in the evening. In spite of the unusual fatigue and excitement, she was still sleeping well and feeling stronger than for many years. With the improvement of her general health came an entire cessation of an obstinate bladder trouble, which had given her annoyance for many years, and was probably due to her weak muscular and nervous condition. The pain in the bladder, which was probably of the neuralgic type, ceased after the relief of the eye tension, and has never returned.

After an interval of four months, during which she had been comparatively well, she returned to New York to complete her treatment. A high degree of hyperphoria was found, and prisms were combined with her hypermetropic glasses to relieve it. With these glasses the patient passed eight months of almost absolute freedom from distress of any kind, when a graduated tenotomy was performed and the hyperphoria prisms removed.

She reported later that she was sleeping well, was able to attend to her household duties, could walk long distances, had taken no medicine for over a year, and was regarded by her husband and friends as restored to perfect health. No relapse of her old symptoms has ever occurred.

Case V. illustrates that a patient can collapse physically from eye-strain due to muscular anomalies (heterophoria), when the *eyes themselves had practically no refractive errors.*

Tenotomies made a permanent cure for this hopeless sufferer, who had practically been regarded as incurable.

CASE V.—Sudden Physical and Nervous Collapse. Preceded by Sleeplessness and Mental Distress.—A. C. H., aged 46, manufacturer, married.

Family History.—Both parents lived to seventy-six years. Two paternal uncles died of phthisis. No hereditary tendency to nervous diseases.

Eye Defects.—Vision 20-20 without atropine. Under atropine, a latent hypermetropia of +1.00 s. in each eye. Patient had never used a glass for reading. Esophoria, 5°. After using prismatic glasses for a short time, the patient showed esophoria of 13°. Adduction, 24°. Abduction, 4°+. Later on the adduction exceeded 50°, and the abduction fell to 0. Homonymous diplopia with the red glass over one eye was usually present, and at times without the red glass.

History of Case.—This patient had been a perfectly well man and had carried on a very large business up to fifteen years ago. At this time, while attending a sale in New York, he was suddenly seized with a dizziness, faintness, and a sore feeling in his head.

These symptoms lasted for three years, in spite of all treatment, during which time he suffered severely from sleeplessness, extreme nervousness, and soreness in his head. He was unable to look out of a car window while traveling without great distress. He had suffered all his life from obstinate constipation, and had taken cathartics so regularly that now any cathartic water causes intestinal hemorrhage.

When this patient first came to me he was able, by the most careful diet, regular habits, and by retiring at eight or nine o'clock, to carry on his enormous business only with the greatest difficulty, because of the following symptoms: Inability to sleep at night, which at times was very distressing and persistent; extreme nervousness after the slightest fatigue; mental depression without any cause; hot flashes up and down his spine; pain in his shoulders and across his back. His insomnia was often prolonged and very exhausting after any slight excitement or fatigue.

Treatment and Results.—The treatment of this patient consisted at first of the wearing of prisms to relieve the esophoria,

and later on of graduated tenotomies on both internal recti. Subsequently, +0.50 s. glasses were given for constant wear, and +1.00 s. glasses for near work. *The distance glasses he soon discarded, as they annoyed him greatly.* The improvement in his condition was marked and continuous from the first. An extract from a letter received from him two months after the operation on his eyes speaks for itself. He says: "Seemingly I am all right, feeling better every day; have not had a headache for a month; appetite good, and I sleep well." Over ten years have now elapsed without any return of his former ill health, during which time he has constantly been engaged in active business pursuits. During these years I have seen this patient frequently at my office. His eye-tests remain unchanged from those obtained after the last tenotomy, and are as nearly normal as it is possible to make them.

Case VI. illustrates that the correction of refraction by glasses had no effect upon the epileptic seizures of the patient. The *addition of prisms,* however, to relieve weak upward rotations of the eyes (*anaphoria*) cured this patient of epilepsy.

This is a most interesting case from the standpoint of the present discussion.

CASE VI.—Grand Mal Attacks of Epilepsy. Complete Recovery after Relief of Eye-Strain without Operative Procedures or Drugs.

Mr. H., aged thirty-two, married, merchant, visited my office first on April 13, 1898.

Family History.—Father living and well at seventy years of age. Mother had sick headaches when young, but is now well at sixty-six years of age. Only sister is living and well. Several cases of phthisis in both paternal and maternal ancestry.

Eye Defects.—The refraction (under homatropine) was: Right eye—1.00^s ⊂ — 1.50^c axis 90; left eye — 1.00^s ⊂ — 1.50^c axis 75. His muscle tests were: Left hyperphoria ¼°; exophoria ½°; adduction 27°; abduction 6°; sursumduction, R. 2°, L. 2½°. The tropometer gave the following rotations: Upward, R. 21, L. 21; downward, R. 50, L. 50; nasal, R. 42, L. 42; temporal, R. 40, L. 40.

History of the Case.—This patient was perfectly well up to twelve years of age, when he had his first attack of "dizziness" or "confusion of the head" while skating. This confusion had never entirely passed away. He had his first epileptic seizure when fifteen years old. Since then his attacks have varied in frequency from nine weeks to four years apart; but he has been during all these seventeen years and is now under heavy doses of the mixed bromides. His attacks are of the grand mal type. They have all been nocturnal, except four. He has severe convulsions, biting of the tongue, complete unconsciousness followed by stupor; but no cry or aura. For the past six months he has had a flushing of the head and dizziness several times every day.

Treatment and Results.—When he came to me he was wearing a full correction for his refraction, and no change was made in this until three years later, when a slight change in his cylinders increased his vision to 20-15 in each eye. All bromide was at once stopped, and prisms were tried for hyperphoria, but were soon taken off and a prism of 4°, base up, was added to the refractive glass over each eye, for the *weak upward rotation shown by the tropometer.* Within two weeks after stopping his bromides he had two slight seizures and was confined to his bed with intense pain in the head, inability to walk alone, nausea, and almost complete nervous collapse. He was then allowed 22½ grains of bromide a day for three months, then it was cut down to 15 grains a day for a month, then to 7½ grains a day for a month, and finally stopped altogether.

I have seen this patient once a month ever since January, 1899, and he has had no attack of epilepsy of any kind since April, 1898, a period of five years and a half. He has taken no medicine since January 1, 1899. He has worn his compound myopic cylinders with the 4° prism, base up, over each eye continuously, and has had no other treatment. He has gained forty pounds in weight, has no headache or dizziness, and is attending closely to his business daily.

Case VII. illustrates how closely the results of eye-strain can simulate those of organic brain disease; also how tenotomies (without the use of glasses) made a poor, helpless child, with paralysis and St. Vitus' dance, grow into an accomplished musician and a superb specimen of womanhood.

CASE VII.—Chorea, Followed by Paralysis. Previous Diagnosis of Brain Tumor. Perfect Recovery after Relief of Eye-Strain.

The history of this case should be peculiarly instructive to the medical profession. The recovery of the patient was complete and permanent; yet it appeared to be a hopeless case of organic brain disease before the eye-strain was corrected by graduated tenotomies.

Within the past year, a photograph of this patient was forwarded to me by her parents. It was taken on the eve of her graduation from a college. She is now a superb musician, expects to become a teacher, and is a perfect specimen of womanhood.

Miss S., aged ten, a large child for her age. Referred to me on June 15, 1891.

Family History.—One cousin on maternal side was an epileptic. One maternal aunt has nervous prostration. Paternal grandmother suffered from nervous prostration for years. Many relatives on paternal side had phthisis.

History of the Case.—Eight months before her visit to my office, this child began to exhibit peculiar movements of the arms and hands; could not seem to keep still, and was constantly knocking things over. These movements steadily grew worse. Six weeks before this visit she suddenly lost all use of the right hand. For months her ankles had been growing weak. They would turn over and cause her to fall. Of late she cannot walk alone with safety. Her speech had also become badly affected of late; and her words now ran together so as to be almost unintelligible. A leading neurologist of New York had made a diagnosis of brain tumor and had pronounced it incurable. Before her choreic symptoms began, this child had complained of her eyes. Whenever she attempts to read, the letters blur badly and her eyes become inflamed.

Eye Defects.—Latent hypermetropic + 1.00; esophoria, 8°; adduction 38°; abduction 2°; sursumduction 2°, right and left. A very high degree of latent esophoria was subsequently disclosed by this patient.

Treatment and Results.—This child was treated at first with prismatic glasses (bases out), and later by graduated tenotomies upon both internal recti.

The wearing of prismatic glasses relieved the choreic symptoms at once. She began, within a week, to try to dress herself. Her mother reported that the right hand rested more quietly in her own whenever she held it; whereas it was formerly almost impossible to hold it on account of twitching of the fingers. Within two weeks the child began to use her right hand (for the first time in my office), to denote the position of test objects while her eyes were being tested.

After the two graduated tenotomies were performed, the improvement was even more rapid. Within four months from her first visit to my office, this child could write and sew with the right hand; could walk alone without turning of the ankles; and had no remaining trace of chorea. Within a year the right arm had fully regained its power and the restoration of health was complete.

For the past ten years, no symptom of relapse has ever occurred. The child of ten years ago is to-day a finely formed woman, strong, robust, and in perfect health.

Case VIII. certainly demonstrates beyond the possibility of contradiction the fact that twenty-four years of epileptic seizures *did not indicate any organic changes in the nerve centers.* It proves also that the results of the treatment remain permanent. It proves that eye treatment accomplished a cure when all other methods of treatment had utterly failed. It proves that the esophoria, which was corrected by graduated tenotomies, never returned (as many opponents of this treatment maintain that it will), and the power of the externi, after being carried to the normal standard of power by surgical procedures, has remained normal ever since.

If this one case of epilepsy was all that I had ever reported as confirmatory of the statement that eye-strain can produce genuine epilepsy, it would be considered as indisputable proof, I think, before any jury of laymen in a court of law.

CASE VIII.—CHRONIC EPILEPSY, UNCONTROLLED FOR TWENTY-FOUR YEARS BY DRUGS AND INSTANTLY CURED BY THE RELIEF OF EYE-STRAIN. NO RECURRENCE OF FITS FOR EIGHTEEN YEARS.

This case of epilepsy is reported here because epileptic convulsions had persisted twenty-four years before the eye treatment was suggested; because they had been attributed to masturbation in early life and to excessive venery in later years; and because the relief of eye-strain has totally arrested convulsive seizures for eighteen years and enabled the patient to use his eyes continuously during that period without any discomfort.

The patient was a personal friend of mine for many years prior to my familiarity with the eye treatment of nervous diseases. He placed himself under my professional care and guidance as early as 1871; and during long absences from New York he had kept me in touch with various forms of treatment that he had unsuccessfully tried for the relief of his epilepsy.

Mr. H., aged forty-three years, merchant, married. First examined by me for eye defects in 1886.

Family History.—His father died of paralysis. One brother was a confirmed drunkard. One sister is a terrible sufferer from sick headaches. There is no hereditary tendency to phthisis.

History of Case.—When seventeen years of age this patient began to have severe epileptic fits. As a boy he had been addicted to masturbation, and quite early in life he had formed an association with a woman that led to excessive venery. To these excesses many physicians whom he had consulted had attributed his convulsive seizures.

I saw him first as a patient in 1871. His epilepsy had then existed about eleven years. He was extremely bright mentally in spite of drugs, and had been very successful financially. His epileptic seizures averaged about four a year; and up to that date were usually nocturnal in type. He had, however, been seized in the daytime on several occasions where his fits exposed him to great personal mortification and comment among his friends. One of these attacks had occurred in a theatre, prior to his first visit to my office. It was a prolonged and very severe grand-mal seizure, preceded by an aura of faintness and accompanied by biting of his tongue. All of his past attacks had been, as far as he knew, of the same general character. He had spent a small fortune in undergoing various forms of treatment (dietetic, electrical and medicinal) without any beneficial effect upon his epileptic seizures.

I pushed bromides in 1871 upon this patient to the extreme point for many months. They prolonged the interval between attacks somewhat; covered his face with bromide rash, upset his digestion, made his mental faculties somewhat more sluggish, in his opinion, and gave him practically no benefit. The severity of his attacks seemed rather to increase than diminish under bromides.

This patient then went south, and I did not see him for several years. On his return he reported that his epilepsy was unchanged. I suggested that he allow me to try the eye treatment, which was then comparatively a new one.

Eye Defects.—In January, 1886, his eyes were first examined by me. He showed, under atropine, hypermetropia (totally latent) of 2.50 D. in each eye; no astigmatism; a "manifest esophoria" of 4°; adduction 30°; abduction 4°. Subsequently a much higher degree of "latent" esophoria was disclosed by this patient.

Treatment and Results.—Graduated tenotomies were performed upon both interni, and glasses were ordered to be worn constantly for a full correction of his refractive error, + 2.50°.

From the first operation, in January, 1886, up to the present date (a period of eighteen years), *he has never had a convulsion.* The last tests made on his eyes (some three years ago) showed: No esophoria; no hyperphoria; adduction 45°; abduction 8°; normal vision in each eye with his spherical glasses of +2.50 D. From time to time he has had his reading glasses increased in strength by me, as his presbyopia developed with advancing years. During this period of eighteen years he has had to use his eyes almost constantly in his business.

CONCLUSIONS.

In closing this somewhat lengthy article, that has been prepared chiefly to instruct the medical practitioner regarding facts that are not yet recognized as they should be, I would say:

1. I think I have proven by the cases adduced here that the *prescribing of glasses to correct errors of refraction* has always been considered by me as vitally important in the treatment of eye-strain. It should always be done most accurately and scientifically.

2. It is *imperative to do this first*; and to have *patients wear glasses for refractive errors constantly for some time* (whenever marked muscular errors exist) in order to determine if they are modified by the refractive correction.

3. REFRACTIVE ERRORS may cause *"apparent heterophoria"* in a certain proportion of cases; and proper glasses may sometimes *modify "genuine heterophoria."*

4. There is indisputable proof that *genuine heterophoria may co-exist with refractive errors* (as an independent source of eye-strain), and it may also be found in cases where absolutely perfect refraction exists.

5. The cases published here (Cases I. and II.) demonstrate most positively that eye-strain alone caused for many years violent paroxysms of both HEADACHE and NEURALGIA (sufficient to make suicide attractive).

The percentage of eye-strain in patients who suffer from headache and neuralgia is enormous.

6. Cases III., IV. and V. show that NERVOUS PROSTRATION, INSOMNIA and MENTAL DISTURBANCES can be caused and perpetuated by eye-strain.

One of these patients lay in bed for nearly one year before her eye-strain was discovered and relieved. Another had eyes that were almost normal in refraction, but a very marked case of heterophoria.

7. Cases VI. and VIII. show that EPILEPSY may be caused and perpetuated for years by eye-strain.

One got well by simply adding prisms to the glasses that he had worn for years. The other was improved slightly by glasses, but he got well only after tenotomies.

8. Case VII. shows that ST. VITUS' DANCE, followed by actual PARALYSIS of the right side, and a partial LOSS OF SPEECH was caused in a child simply by eye-strain. *A diagnosis of brain tumor* had been made by an eminent neurologist but a few days before the first tenotomy.

A complete and permanent cure was effected by eye treatment without drugs within a year.

9. I would refer my readers to my work entitled "Eye-Strain in Health and Disease" (F. A. Davis Company, Philadelphia) for full clinical histories of over two hundred illustrative cases of various results of eye-strain.

Most of these have been in good medical hands and had proven to be incurable by medication; and many had even been pronounced as cases of organic disease before the eye-strain was detected.

10. These eight cases, as a group, must prove, I think, to any unprejudiced mind, that careful, long continued and patient investigation of errors of refraction and anomalies of adjustment of the eye muscles should never be omitted whenever the possibility of a reflex cause may exist as a factor in creating abnormal conditions of the nervous mechanism, the muscular apparatus, or the viscera.

345 MADISON AVENUE.

SOME POINTS IN THE INTERPRETATION AND CARE OF DISORDERS OF THE CIRCULATION.

BY LOUIS FAUGERES BISHOP, A.M., M.D.,
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DISORDER of the circulation has always been to me a topic of the greatest interest and is one of sufficient importance to make it worth consideration apart from other elements in the diseases in which it is found. In many instances death results from a failure of the circulatory apparatus, and one often feels that if failure could be deferred the underlying cause might be combated and the patient saved. No practicing physician is without constant examples of this tendency not only in acute but also in chronic disease.

But few new remedies have been discovered for the control and cure of circulatory disease, but great strides have been made in the better use of known expedients.

The care of disorders of the circulation raises problems, the solution of which awakens in the philosophical mind the liveliest interest. Questions of myology, physics and neurology are involved, as well as questions as to the natural course and termination of human life. Poetry has always placed the heart as the centre of emotions, and science has made the blood-vessels a measure of youth.

So much has been written of disease of the heart proper that we may well pass it over with but slight description. The diseases of the heart valves and the perfectly familiar phenomena of pure valvular disease, may well give place to a discussion of the practical management of disorders of the general circulation. What are our resources in the control of the circulation?

In the first place there are the natural sources of stimulation. In a healthy individual there are constant fluctuations of the blood supply to the various parts of the body in response to the various conditions of life. The most striking is the stimulation of the heart and the dilatation of the blood-vessels at the beginning of physical exercise. The circulation in a great measure soon re-adjusts itself, so that in continued exercise the conditions are different from what they are at the beginning of exercise. The management of this form of heart stimulation is of the utmost therapeutic importance. Again, the effect of cold and heat upon the peripheral circulation is very striking. The pale surface of cold and the flushed surface of heat are perfectly familiar, but how little we consider their significance. The external application of heat is undoubtedly the best of all cardiac adjuvants in many conditions. Only a few days ago I am sure I witnessed the saving of the life of an infant by a hot bath. It had just been delivered by force from a mother suffering from eclampsia.

The effect of mental activity upon the circulation is profound. The vaso-motor disturbance as seen in the pallor of fear or the flushing of anger, is of little importance. The effect of prolonged anxiety and the exciting worry of business, leads on the other hand, to the most troublesome impairment of the circulatory apparatus that physicians have to deal with in modern city life, namely, high arterial tension. So, apart from chemical agents or actual disease, there are powerful elements which for good or evil influence the circulation.

Exercise: Exercise and its counterpart, rest, are two of the most powerful expedients in the treatment of diseases of the circulation. Many of our hospital cases are cases of broken compensation in those who are forced by the conditions of their lives to earn a living by physical toil, and in whom exercise has already been carried beyond the point where it is safe. To these cases perfect physical rest is, without question, a boon. There is no greater charity in the world than to offer to these people a place where they may have rest and freedom from responsibility and toil. On the other hand, in private practice it is a question to decide when physical rest has reached the point where it is harmful. Exercise is the best of all heart stimulants. Under its influence the nutrition of the heart improves, its innervation gains stability and the blood-vessels become more active.

Blood Pressure is a very important element in the study of the cure of cardiac disease, because in its last analysis the entire function of the heart resolves itself into the maintenance of a suitable pressure in the arteries. Recent study has shown that the arterial pressure is practically equal throughout the whole arterial system except as influenced by gravitation. The first real resistance is met with in the arterioles and it is here that the blood pressure falls to the level of the pressure in the capillaries. The capillaries presenting an area much larger than the arteries do not cause any perceptible diminution in blood pressure. Thus clinical workers have been correct in laying so much stress upon the condition of the very small arteries.

Blood pressure is maintained by the muscular action of the heart, but this must be counterbalanced by an equal amount of muscular action or elasticity in the arteries. It is probable, indeed, though I do not know that it has ever been calculated, that there is just as much muscular tissue in the arteries as there is in the heart. The muscular action of the veins is very slight.

This whole wonderful arrangement, is, of course, under the control of the nervous system. It is only by keeping the broadest survey of this whole matter of blood tension that we can arrive at the judicious management of cardio-vascular disease. The matter is too complicated for the off-hand administration of drugs to dilate the arteries. These, indeed, are important and useful, but after all are only available to counteract influences that have caused abnormal contraction of the arterioles. The heart itself as the origin of pressure must always be the most important element in the problem and is not always the most easily controlled.

Irregular Heart Action: The treatment of irregular heart action must be inferred from its cause, and from clinical experience in the use of drugs. A good many cases of neurotic origin yield spontaneously when the cause of the nervous exhaustion has been removed and the patient has recovered from his depressed condition.

The significance of irregular heart action may often be implied in the attending circumstances. Thus, the irregular heart of mitral stenosis indicates a halting struggle to overcome an obstruction. In the course of wasting disease, especially in one previously vigorous and of strong constitution, irregular heart action often indicates failure before any diminution in strength of the pulse can be certainly detected. In some patients irregularity is habitual and without important significance.

Interdependence of Cardiac with other Diseases. If a man could become complete master of the diseases of all the organs in the body save one, he would probably be better able to understand and treat the diseases of that one organ when first encountered, than the man who had devoted himself to mastering one organ without a knowledge of the diseases and relations of the many other organs. So interdependent indeed are the organs of the human body that but rarely is disease confined to a single one.

Much has been written recently of the influence of diseases of the eye upon nervous disorders, of the relation between gouty blood and many local disorders, of the relation of intestinal fermentation to toxemia, and so forth, but all this time there are certain grand old truths that have been recognized by broad-minded physicians for many years, but which can never be too much taught and emphasized. These are the relations between diseases of the heart, lungs and kidneys and their connection with disorders of the digestive system. In this category we find those indefinite degenerations that overtake in the progress of his life, the healthy but indiscreet, hard-working active man, who has escaped the infectious diseases, but in whom there have been causes at work that have been reflected back and forth between all these organs until not one of them is sound. The over-ingestion of food and wine has loaded the circulatory system with an excess of food products, that, finding no use in the economy, have been a burden upon the heart by increasing the bulk and activity of the circulation, upon the kidneys by increasing the excretory demands, and upon the lungs by the attempt they have made to maintain an efficient oxygenation. The first symptom of danger is often observed in the heart and blood-vessels. A heart constantly irritated by an excessive burden becomes a little hypertrophied. There is a slight increase of arterial tension. Immediately the blood-vessels feel the impulse and respond to the greater tension by a minute thickening of their walls. From hypertrophy to sclerosis is a progressive path and the man is found in the very first stages of chronic Bright's disease. The kidneys being practically a department of the circulation given over to the removal from the blood of waste products, are soon involved in the process. Most marked is their increased action so that the urine is a lower specific gravity than normal. Later there may be albuminuria and casts. The lungs being another department of the circulation given over to the oxygenation of the blood and the removal of gaseous excretions, are not exempt from this process. The walls of the vesicles through the disease of the blood-vessels become involved in an atrophic process whereby the lesions of emphysema are produced. This is the picture of one of these organ group conditions starting from disorder of the digestive system.

In the same way an organ group disease may start from the kidneys, heart or lungs. Primary kidney disease, due to an infection which has caused an acute nephritis may set up a train of conditions following the resulting renal insufficiency. The irritation by the retained products will cause irritation and contraction of the blood-vessels, resulting in arterial tension which again will occasion cardiac hypertrophy, starting the train of symptoms that leads to arterial sclerosis and pulmonary emphysema, resulting later in interference with the organs of digestion and to malnutrition.

Valvular disease of the heart produces passive congestion, often enough resulting in impaired action of the kidneys, congestion of the liver, spleen, pancreas and intestinal tract, involving all of our organ group, and if no acute condition intervenes, resulting like the rest in arterial sclerosis. Thus we see that chronic disease of the heart, lungs and kidneys, both in the beginning and in their later development, are closely interdependent and bear a definite relation to disorders of the digestive system.

Syncope and Heart Disease: The popular belief which is often encouraged by the profession, that fainting is a frequent symptom of heart disease, is worth while discussing. The fact is that heart disease in itself is a comparatively rare cause of syncope. Syncope is almost without exception a manifestation of some nervous disorder, and strangely enough, it is usually the result, rather of an over-acting nervous system than of depressed conditions. So we find people fainting under the influence of great excitement, either of pleasure or pain. We find that patients who suffer from epilepsy, which is, if anything, a disease characterized by overcerebral activity, are subject to attacks of syncope apart from their convulsive seizures; and we find patients of a hyperactive and hypersensitive nervous system subject to attacks of syncope, which, for want of a better term, we call hysterical, but people with organic heart disease are not particularly subject to fainting attacks.. Of course, it is easy to cite particular instances in which patients with cardiac disease have been subject to attacks of syncope. In some of these the syncope was due to a nervous element in the case, while a few were really cases of cardiac syncope. Any doubt of the origin of these attacks will be dispelled if the use of bromides relieves recurring attacks of syncope.

Nauheim Treatment: The Schott method of treating cardiac disease is certainly a magnificent addition to modern therapeutic measures. It is essentially a method of restoring compensation. It acts, probably, through reflex influence from the skin to the heart, and at the same time relaxes the peripheral circulation and creates a tonic effect upon the heart.

The baths, like all systems, in the beginning before the underlying principle is worked out, were complicated by an excess of minutiæ which obscures the whole subject. The time is approaching, however, when reports will be received from competent observers who have simplified the method and we can then compare the results with those that have been reached at Nauheim.

The Use of Opium in Cardiac Disease and the Importance of Nutrition: There can be no doubt of the extreme value of opium in cardiac disease in appropriate cases. In not a few instances of broken compensation a vicious circle is established by the failing heart and the extreme restlessness and discomfort that go with it. This restlessness, due to oppressed breathing, brings about poor cerebral circulation, and failure from the loss of sleep re-acts upon the enfeebled heart, so that the cardiac stimulants and regulators—digitalis, nitro-glycerine and the rest—seem to have lost their grip upon the case. Worry has destroyed the appetite; the patient is losing weight and becoming discouraged.

Now the judicious plan of treatment is complete physical rest, and where the patient will not stay in bed

on account of the restlessness and discomfort, opium in some form must be used. The effect is sometimes surprising in these exhausting cardiac diseases. The tension disappears from the pulse, the appetite returns and the patient obtains needed sleep. Of course, it is only an expedient, but it may mark the beginning of an improvement that may mean another crisis passed in a case where the impression would be almost unavoidable that the final crash had come. In cases of cardiac dilatation and degeneration, where the heart still has the contractile power that raises the chest-wall, we can always hope for a good result for the time. It is when the heart ceases to struggle that we have most to fear a sudden failure. So it appears that the patient is often more comfortable when the danger is greater.

The feeding of these cases is important, because a failure of bodily nutrition undoubtedly soon implies a failure of nutrition of the tissues of the heart. The digestive organs are weak. There is often a great tendency to distension of the stomach by gas. By many a milk diet is not well borne. These are cases in which it is well to make use of suitable proprietary foods in rotation. In addition there are kumyss, matzoon, preparations of cocoa and peptonoids. When the liquid peptonoids are used or any of the allied preparations, the amount of alcohol they contain should always be considered. The food should be given in small quantities at intervals of about every two hours. The notion that the stomach should have a rest is not borne out by experience. In weakened conditions the stomach seems to be able to digest small quantities of food and keep at work pretty much all of the time when it is entirely unable to digest large meals at long intervals. So in the use of opium and in careful nutrition we have two important indications in certain bad cases of broken compensation.

We think of the importance of keeping up the general bodily strength in cases of failing heart, but do we often enough consider the relation of this nutrition to the heart itself? We know that in many functional nervous diseases, good results are obtained by overnourishing the body, so that the nerves themselves finally become well nourished. We know that in certain diseases of the bones certain kinds of food are necessary, and we know very well the effect upon the working power of animals of a proper diet.

Now in the failing of the heart from simple weakness it would seem as if food aimed directly at the nourishment of the heart muscle might be of service. Our knowledge of the complicated problem of nutrition has rather led us astray from the elementary views that seem so rational—that to help out a particular tissue we should feed the corresponding tissue of animals. However, in the case of the ductless glands, it has been definitely proved that this is possible, so why not in the case of an organ like the heart, an organ that is highly specialized, whose tissues possess remarkable powers, and which in itself contains nerve tissue of unusual activity? The practice of feeding to patients suffering from disease of the heart muscle, the muscular tissue of the heart of animals, has been more or less in vogue in England for a good many years. It seems strange to me that it has never become a fad in this country, where many are very quick to take up anything of this kind. Of its real value, I have no idea.

SOME OBSERVATIONS ON TUBERCULOSIS.

BY JOHN B. HUBER, A.M., M.D., NEW YORK CITY.

THE physician, whenever it can be done, sends the consumptive into the country, believing that in the enjoyment of the benignant sunshine and in the pure air, with rest, good food and drink, he stands the best chance of recovery. And he does stand the best chance under such conditions. But many inhabitants of rural districts, nevertheless, die of consumption. And we have to try and understand why such is the case. Sometimes it is the execrable diet, to which meats other than bacon are practically strangers, canned fruits and vegetables and condensed milk being largely consumed, the fresh foodstuffs, including eggs, being reserved to be sold in urban markets. I write from experience. When I was sixteen—it is longer ago than I like to remember—I taught school in a rural district for four months, and "boarded 'round." In all that time I did not taste meat other than bacon, I never ate an egg, and the only milk I drank was with my tea.

Then there is oftentimes in the country a seemingly innocuous imbibition of stomach bitters (which generally contain a very fair percentage of alcohol), of cider and perhaps other insidious fluids. These conditions may seem more virtuous and more soothing to the conscience, but they are not in many cases essentially different from the inordinate alcoholism which lays the foundation of tuberculosis. Indeed, when cider becomes old and hard there is nothing to be found in the city grogshops more "paralyzing." Then we must mention the effect of intermarriage through several generations in families living within a few miles square, and of certain evils which have been reported by such accurate and responsible journals as the *New York Evening Post* to an extent really startling. Then we must refer, also, to a lack of regard to the bodily functions which often obtains in the winter months through disinclination to venture to outhouses in the intense cold. Thus is the constipation habit formed.

Such considerations as these may explain how it is that many in the country do not get well of consumption, but, on the contrary, die of it. Years ago, when the erection of a sanatorium in a mountainous district in New York State was contemplated, an inhabitant of that region was surprised. "Expect to cure consumption here?" said he. "Why, the people here don't die of anything else." Nevertheless, the sanatorium was built, and thousands of consumptives have got well while living in it. But they have been under the direction of wise physicians who have taught them wholesome living and the value of hygiene and have secured for them good, substantial food and drink, in addition to the fresh air, the sunshine and the pure water which Providence has vouchsafed so generously in this region.

It appears that the complex of symptoms resulting from the pernicious activity of the tubercle bacillus and its allied micro-organisms, which we term consumption, manifests itself among the Jews less than among any other people or race, except, possibly the Quakers. The conservative statistician, Mr. Hoffman, of Newark, inclines to this belief, and Korosi, Billings, Fishberg, and other careful students, declare such to be the case. This finding cannot but appear remarkable, because among the Jewish poor, of whom there are several hundred thousand in New York City, most of the circumstances of life are quite ideal for the spread of

this disease. The poor Jews are not more cleanly than other peoples in the same stratum of life, nor do they live under better conditions. Indeed, they are, for one thing, much more crowded. Moreover, they work much harder and under influences much more prejudicial to health—in the vitiated atmosphere of sweat-shops, where they bend for many hours over sewing machines, so that, as it is said of them, "they have no chests."

Three reasons for the relative infrequency of consumption among the Jews occur to one: They are generally temperate in the use of alcohol. They drink wines, but they do not get drunk. Alcohol is not customarily taken by them to the degree that it devitalizes the tissues, rendering them a fit pabulum for the bacillus, the original nature of which is that of a saprophyte, feeding upon devitalized or dead organic matter. Again, the race must, through the four thousand years of its existence, have acquired for itself an immunity to tuberculosis. This is surely a point worth considering in relation to the subject of immunity in general—a new scientific field, and one certain in the near future to become a very fruitful one.

Lastly is the character of the food which the very poor Jewish people eat. The rich Jews, it is said, pay comparatively little attention to the sanitary code set down in Leviticus, but the poor Jews obey with the utmost strictness the Mosaic laws regarding foodstuffs. They really eat only "kosher" food. And it is said that the most dreadful slander one may utter against a housewife of the Ghetto is that her family eat meat which is "trefa." Here, surely, is some confirmation of the belief of many scientific workers that tuberculosis is in large measure an ingestion infection.

Finally, it may not be fanciful to contrast the negro with the Jew with regard to this disease. Every other negro dies of it; the Jew, least of all peoples. The negro, it is averred, has been subject to tuberculosis during but a few generations past, and has not yet achieved a racial immunity; the racial immunity of the Jew is the resultant of exposure during forty centuries. Pork, probably the most tuberculous of all animals, is the almost exclusive meat diet of the negro. The Jew is commanded not to eat pork.

It is with a very real sense of melancholy that one contemplates the long death-roll of those of the world's great men and women who have succumbed untimely to the tubercle bacillus, which is and has been through countless generations by far the most potent of all death-dealing agencies. Had it not been for this saprophyte Bastien Le Page might have given us another Joan of Arc to feast our eyes upon; Rachel might for many years have continued to permeate the spirits of her audiences with the divine fire that was in her. Our navy did well enough in the 1812 war, as all the world knows, but what a rip-roaring time there would have been if John Paul Jones had lived to take a hand in it! We might be reading some more of Stephen Crane's splendid war stories, or some more of Robert Louis Stevenson's delicious literary lacework. Schiller might have given us another "Song of the Bells"; we might have taken another "Sentimental Journey" with Lawrence Sterne; Henry Cuyler Bunner might have continued to delight us and to touch our hearts; John Keats might have given us another "Endymion." Had the tubercle bacillus permitted, Nevin might have vouchsafed us another "Rosary"; von Weber, another "Euryanthe Overture"; Chopin might have dreamed another "First Polonaise," and the tender flute notes of Sidney Lanier might even now be heard. Maria Constantinora Bashkirtseff, Zavier Bichat, John Godman, Rene Theophile Hyacinthe Laennac, Henry Purcell, John Sterling, Henry Timrod, Artemus Ward, Henry Kirk White, Henry Daniel Thoreau, Baruch Spinoza—such names as these are but a moiety among those of the world's great ones whose precious lives were cut off in their prime by the Great White Plague.

It were, indeed, worthy the pen of a Heine to set forth how, although our mastodons are extinct, although we easily destroy all other visible creatures, although we hold ourselves to be world masters and universal compellers, humankind has, nevertheless, until our generation, been impotent in the presence of an organism infinitely microscopic and which multiplies insidiously in inconceivable numbers.

THE NECESSITY OF STUDYING DETAIL IN CARDIAC CASES.

BY G. R. REYNOLDS, M. D.

THE subject of cardiac disease has always been a fascinating one to me since studying medicine, and I wish to report my experience from the habit of studying the details of my cases. This I believe absolutely essential for successful treatment.

Firstly, in valvular lesions, I believe like Liebermeister, in the administration of a good mixed diet especially rich in proteids. I give enough water for all needs, but limit or forbid alcohol entirely. Coffee or tea, if used, I give diluted freely with boiling hot milk. I give iron and cinchona as a routine practice for nutritior, and, if allowed to select my patient's residence, I send him in the summer to an elevation of fifteen to three thousand feet, while in winter I prefer a climate that presents out-door exercise. I insist on rest in bed, absolute and continued if compensation is disturbed. I use digitalis in getting compensation, but of late years have shifted to strophanthus as a more ideal heart tonic.

In chronic valvular cardiac disease, the routine is familiar: the patient is disabled for laborious, exciting or harassing occupations; his life is insecure and uninsurable; death may occur suddenly at an unexpected moment. Now, such a prognosis was once all that could be offered to a patient or a patient's friends—in the days when etiology and pathological anatomy and clinical investigation were not so full and exact as they are now. When we have completed our investigation of a case of chronic valvular disease of the heart and proceed to frame our idea of the future, the first question that we ought to put to ourselves is what prospect does the origin or nature of the disease afford us? A different prospect with each of the ordinary kinds of lesion; an old rheumatic lesion is a scar, and nothing more, a cicatrix which has distorted a valve or stenosed an orifice: this is an affair of the past, rarely progressive. This is a relatively safe condition, and the prognosis is correspondingly favorable. Bruce, of London, relates a story which illustrates this well. He says: "I remember as if it were but yesterday, although it is now twenty-seven years ago, the anxiety with which I tended a boy of fifteen, the son of one of my best friends, for acute rheumatic pericarditis and endocarditis of the aortic valves producing incompetence. That patient is still alive and active and promises to live the average term of life, although a proposal for insurance would not have

been entertained by any company—at any rate in those days. A lesion of syphilitic origin is a different matter altogether; possibly recent, possibly active, associated with active disease of the coronary arteries and myocardium. This is a dangerous process, and the prognosis is highly unfavorable; life is relatively short and quite insecure; death may be sudden. It is remarkable how frequently syphilitic lesions, including syphilitic lesions of the heart, are found in the bodies of persons admitted dead into a London hospital. My own observation agrees with this. I have known a strong-looking man of forty with aortic incompetence in whose case the existence of cardiac pain and a history of syphilis induced me to offer a fatal prognosis, die in a few days, much to the surprise of his medical attendant who was not prepared for so rapid a termination of the case. Is the valvular lesion atheromatous? Then, again, we have to forecast less favorably. Not but that many persons live for years with an aortic systolic murmur significant of an atheromatous arch, but that with this there often is associated atheroma of the coronary branches which may at any moment prove fatal, or more slowly lead to myocardial degeneration and failure of the heart. In the former event, sudden death is, sometimes at least, due to rapid formation of a thrombus on a diseased area of a coronary artery, the result of some temporary depression of the circulation or alteration of the blood. And a similar event may occur, to our disappointment and distress, in these cases of long standing atheroma just when we are congratulating ourselves that we have overcome the cardiac failure and removed the dropsy by means of judicious treatment. Or the cause of the valvular disease may have been acute strain or chronic strain, and these must be reckoned with as fairly as possible in forecasting the expectation of life and health, neither of which is by any means secure when the susps or the chordae tendineae or other part of the valvular apparatus is either torn or worn."

In our diagnosis of such a case do we include the nature or origin of the process which has damaged the valve? How many of us, having found a mitral systolic murmur actually trouble to ask ourselves how it originated. We satisfy ourselves in busy practice with the discovery of "valvular disease," just as we do with such an incomplete diagnosis as "pleurisy" or for that matter "sore throat." And yet, this is an indispensable subject of inquiry. Its importance is recognized at once when the point is definitely stated. Never let us neglect this element of prognosis in cardiac disease.

Again, the next prognostic element is derived entirely from pathological anatomy, including the seat of the valvular lesion—whether aortic, mitral, tricuspid or pulmonic; the forms of the lesion—whether obstructive or regurgitant, or both, at each of the orifices; and the extent or degree of the damage to the valvular apparatus. The condition of the cardiac wall—whether hypertrophied or dilated, or both, the nutritive condition of the myocardium and that of the vessel, as well as the state of the other viscera is to be noted. All these anatomical facts can be learned by ordinary clinical examination—by a study of the symptoms and signs. Aortic lesions are alleged to be less favorable than mitral; that mitral stenosis is more favorable than mitral incompetence; that some lesions are so slight that they do not sensibly disorder the circulation; that tricuspid systolic murmur is ominous because usually a manifestation of cardiac failure, but may be expected to disappear if the failing heart respond to remedies. How doubtful is its value standing by itself, that is, without the first order of considerations—the etiological, which we have just reviewed! Aortic incompetence, it is true, is a relatively unfavorable form of lesion; but it is chiefly unfavorable because it is so often degenerative or specific, and so seldom rheumatic in its nature. Do not be led away by the attractive murmurs, from what is less evident on the surface, but all important, the essential origin or kind of the pathological change. Next comes the clinical phenomena of the functional condition of the circulation—of the adequacy or inadequacy of the heart and vessels as the great physiological system.

Broadly, there is compensation or failure; is the man free from what are called "the symptoms of heart disease," or does he suffer from precordial distress, palpitation, pain, dypnoea, dropsy—the manifestations of an incompetent circulation? The two conditions are different clinically; but compensation may at any time pass into failure if the conditions of life become unfavorable; if compensation is present and the question is whether it can be maintained, these influences must be understood as well as how far they can be controlled or anticipated. If the heart has failed, and we are asked for a prognosis, we must never fail to discover, if we can, which of the many possible influences is to blame, and to consider whether it be within our control. We find that something or other, as a rule, quite independent of the lesion, is at work when the heart fails; something altogether new has occurred to break compensation; in connection with the patient's occupation, his food and other ingesta, including stimulus, the nervous influence of every kind around him, the different diseases, acute and chronic, to which he is exposed, particularly such as involve the circulation, the strains of growth and development, and of special functional activity, as in women, or the advent of old age. How is the factor in the progress or history of a case of valvular disease to be correctly reckoned with in the prognosis of a case of compensated disease of the heart? Whether the lesion be rheumatic or be syphilitic, whether it be aortic or mitral, whether it be obstructive or incompetent, the future of it, and with its future the correct prognosis of it, hang, after all, very much upon the conditions of life in which the patient lives and in which he is forced to stay. If our forecast is to be correct we must know these: first, what every subject of valvular disease may anticipate, and secondly, what the particular individual before us may anticipate. This is a personal question only—relating to each individual case as it comes before us. If the patient be a poor, overworked, intemperate man, compensation will speedily fail; if he be a healthy, well-off and well-living youth, he may live for fifty years. This is true; but can we not differentiate more particularly the common cause of cardiac failure in a way which may be of immediate service to us in practical prognosis? What is the prospect of life and health in a lad of fourteen to nineteen who is the subject of valvular disease of the heart with compensation. Having estimated the etiological and pathological elements of prognosis ask what circumstances or conditions of life influence compensation for good or for ill such a patient, and will continue to influence it for some period of time. In the first place rheumatism is a standing menace always.

A child may at any time have return of rheumatism in acute or subacute form, or perhaps, more likely, nothing more disturbing to his people than sore throat, or

growing pains, or erythema, or pleurisy, with a little feverishness—but, unfortunately, with fresh endocarditis or pericarditis, the development of a fresh valvular lesion and failure of the heart. Or, if he be pushed and worried at school, he may become choreic—again with fresh inflammation of his heart. Other acute diseases, anaemia, impoverishment by improper feeding, hardships and bad management generally are also common causes of broken compensation in childhood. Do not forget physical exertion in the keen and active school-boy, whose principal thought is of cricket, football and cycling. The practical bearing of these prognostic considerations is obvious, as well as the importance of regarding every case of heart disease in a youth from this point of view. The parents dwell so anxiously upon the heart and the effects on it of exercise or exertion as to be oblivious to everything else. In these cases prevent the rheumatism from haunting him throughout all these years; and, hence, our advice is directed largely to the prevention of rheumatism and to the immediate and thorough treatment of it should it appear in any of its forms or phases however mild. We appreciate one of the principal use of correct prognosis, of prognosis practised on rational lines. Like a weather forecast or a storm warning, it carries with it a patent suggestion of measures for prevention. In the youth with a valvular lesion of rheumatic origin, prognostic knowledge, if correctly employed, means successful prevention by control of the diet, by attention to the stomach and bowels, by close and continuous outlook for the appearance of any one of those aberrant phenomena or phases of rheumatism, as well as for the occasional facial twitching or nocturnal restlessness, which so often fore-shadows an outbreak of chorea and acute inflammation of the heart. During adult life, extending from twenty-one to forty-five, the prognosis of compensated valvular disease has to take into account an entirely new or additional series of influences which threaten to lead to failure. The danger of rheumatism, though ever present, has in a great measure passed, and with it that of over-pressure at school and chorea. In young men exercise is still very likely to be abused, with strain as the result. The most important cause of new kinds that have to be foreseen and reckoned with are the work, business or profession which the man has taken up as the occupation of his life, with their many unfavorable actions on the circulation and nervous system, not to speak of other functions; the abuse of alcohol, and tobacco, and syphilis. In women with valvular disease at this time of life the serious risks connected with maternity in its different phases have to be definitely estimated in making a forecast. And in both sexes it goes without saying that between twenty-one and forty-five the course and promise of a patient's life, whether fortunate or unfortunate, comfortable or hard, as well as the patient's disposition and character, are practically settled; and that the prognosis is to be modified accordingly. How different is the immediate and prospective forecast in mitral disease during this period of life from what it was in childhood and adolescence! How wide the survey that must be made by the practitioner who is responsible for advice as to the future—as to the occupation most suitable for a young man with aortic incompetence, the wisdom of marriage in the young woman with mitral senosis; the limits that ought to be set in every case to work and responsibility undertaken and increased with every year of life, as well as the enjoyment of pleasure, rest and self indulgence. Prognosis here demands the exercise of close observation and much thought; and happily it is peculiarly assisted by that intimate acquaintance with the individual patient in all his relations. In middle age and early senescene—from forty-five to sixty—comes next in consideration the outstanding influence of an unfavorable character with which we have now to reckon in the prognosis of compensated valvular disease is degeneration, which for our present purpose we may regard as characterized pathologically by that complex condition called atheroma. Nutrition fails in the arteries, not only throughout the vascular system generally, with serious backward effect on the walls of the heart, but particularly in the coronaries themselves, whereupon the valves which they nourish break down and the myocardium is impoverished, weakened and diseased. Now atheroma can usually be traced to some familiar cause if one will but take the trouble to do so—gout, glycosuria, and allied disorders of metabolism, including corpulence, alcoholism, Bright's disease, syphilis, or it may be to nervous strain, or physical strain during attempts to recover health and vigor by muscular exercise. Degeneration is not a natural or necessary result of manifestation of old age, unless ageing is to be defined as the result simply of wear-and-tear and nothing else. Here, then, there is plenty of scope for judgment in prognosis in older or aged subjects of valvular disease, and if prognosis be prompt and successful perhaps for timely prevention. While we speak of vascular and cardiac degeneration and atheroma as the common result of all the causes and processes, the pathological processes themselves are by no means identical any more than are the causes. Some of them are essentially progressive, and, therefore, hopeless, such as Bright's disease; but others are amenable to treatment and therefore less unfavorable prognostically, such as simple strain and the outcome of injudicious indulgence in food and rest; in these the importance of timely provision is obvious. The possibility of the advent of gout after thirty in the subjects of chronic valvular disease with family predisposition suggests the timely adoption of well-recognized measures for prevention. In a word, correct prognosis at this period of life, as at others, demands intelligent observation and consideration of the special dangers ahead. No class of cases in which opinion and advice as to the future can be offered with less confidence than in senile heart disease, unless the problem be attentively surveyed from this point of view, for individual symptoms and signs, such as pain, faintness, palpitation, increased precordial impulse, weak apex-beat and murmurs.

In the failing heart in valvular disease, how we can turn to prognostic use the clinical facts that characterize it. We find that our efforts to maintain compensation have been in vain. As we stand by the bedside of a child, a young man, a middle-aged or an old man, suffering from dropsy, orthopnoea, precordial distress, and other miseries unhappily too familiar to us in valvular disease with failure, it is not too late to inquire which of the many causes of failure that we have reviewed is at work before us. A correct prognosis is impossible otherwise. Is it rheumatism, or chorea, or physical strain in the lad of seventeen that has changed the healthy-looking youngster of a month ago into this poor sufferer? The question must be deliberately asked and if possible answered. Is it worry, or drink, or exertion, that has broken down cardiac compensation in the same way in this man of

thirty-five? Is it the responsibility and worry of a great business, or the consequent success and self-indulgence ending in disordered metabolism and gout or even Bright's disease, that is at the bottom of the urgent cardiac symptoms in the city merchant, who has had an attack of angina in hurrying to business in the morning, although to our knowledge he had had a cardiac murmur without symptoms for the last twenty years?

Prognosis in chronic valvular disease of the heart involves scarcely less than universal knowledge. In chronic cardiac disease, more than in any other disease, there is seen that balance of disease in repair which must be maintained in every person if health is to be preserved or which must be restored if health has been injured. Every condition of life depends on its maintenance.

In those cases of aortic regurgitation in which a presystolic murmur is heard during life, and in which no mitral stenosis is found after death, I have been in the habit of thinking that the murmur in the mitral area was simply the aortic diastolic murmur, heard at the apex, as presystolic. Such an explanation obviously cannot apply here; for, although the presystolic murmur might perhaps be produced in this way, the well-marked presystolic thrill (which was even more distinct than the murmur) can hardly be accounted for in this manner. It must, in fact, be conceded that the presystolic murmur and thrill were generated at the mitral orifice; and that they were not merely vibrations of an aortic diastolic regurgitation current heard and felt in the mitral area as presystolic. This being granted, the question next arises, "Were this presystolic mitral thrill and murmur indicative of organic disease (stenosis)?" There was no appreciable degree of mitral stenosis; and, therefore, to suppose that this may possibly have been a case such as the late Dr. Austin Flint described. In the absence of a post-mortem it is impossible to speak dogmatically as to the condition of the mitral valve, but the case is of interest in connection with the late Dr. Flint's. Theoretically, it is, of course, possible that a mass of vegetation adhering to the auricular surface of the valve might cause a presystolic thrill and murmur, without producing any appreciable amount of stenosis or obstruction. Such a condition, though theoretically possible, is practically very rare, even if it ever occurs. As has been already stated, the fact that a presystolic murmur is rarely observed in cases of aortic regurgitation, constitutes a very serious objection to Dr. Austin Flint's theory.

Granting, however, that a presystolic murmur may be produced in cases of aortic regurgitation in the manner that Flint supposes, it is quite obvious that since its occurrence is the rare exception rather than the rule, there must be some peculiarity in those cases of aortic regurgitation in which it is present. If Flint's facts and theory are correct, the occurrence of this murmur may perhaps be explained by supposing that in those rare cases in which it is met with, the lesion chiefly affects the posterior coronary segment of the aortic valve, with the result that the full force of the regurgitation current falls, as it were, upon the great anterior segment of the mitral valve, forcing it into the position which Flint has described as essential for the production of the murmur.

An American Girl, Miss Milroy, has just received from Berlin University the degree of Doctor of Science, *Magna Cum Laude*, for original work in chemistry—the first time this degree has been given to a woman.

CASE OF MULTIPLE CALCULUS REMOVED BY SUPRAPUBIC SECTION FOUR WEEKS AFTER AN EXPLORATORY SUPRAPUBIC SECTION, IN WHICH THE STONES WERE OVERLOOKED.

BY G. FRANK LYDSTON, M.D., CHICAGO,

Professor of Surgical Diseases of the Genito-Urinary Organs, Medical Department, State University of Illinois; Surgeon to St. Mary's and Samaritan Hospitals.

A PATIENT, 35 years of age, married, police officer by occupation, consulted me with reference to an intractable cystitis of some six or seven years' standing. There was a typic history of nephritic colic, which had recurred several times, the last attack having been about two years before I saw him. Four weeks before consulting me a suprapubic cystotomy had been performed upon him for the purpose of exploration and drainage by a most distinguished surgeon.

On exploration, I found two large calculi in the bladder, and proposed operation, which was consented to. The operation was performed three days later by the suprapubic route, the incision being made to correspond with the incision made four weeks previously. The calculi were readily found with the finger and removed without difficulty. The recovery was uneventful, and, as might be expected, the cystitis was cured. The patient has since had several attacks of renal colic.

This case is interesting as showing the ease with which calculi may be overlooked in the bladder by even competent men. I understand that in this case the surgeon made an ample incision into the bladder and explored it with an electric light and a tubular glass speculum. The most logical explanation for his failure to find the calculi is probably the up-to-dateness of his method. Had he relied upon a careful exploration with the finger alone he could scarcely have overlooked the calculi. That the calculi were present at the previous operation is indubitable.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

1. What effect has pilocarpus on (*a*) the heart, (*b*) the skin, (*c*) the salivary glands?
2. Give the etiology and treatment of hematemesis.
3. Give the source, the physiologic action and the therapeutic uses of oleum ricini.
4. Describe the therapeutic uses and the dangers of chloral hydrate. How does a toxic dose of chloral hydrate effect the body temperature?
5. What is the source from which eserin is obtained? How and for what purpose is eserin principally used?
6. Give the causes and effects of obstruction of the ductus communis choledochus.
7. What is the source of lanolin? Describe the therapeutic uses of lanolin.
8. State the common name and give the composition of compound effervescing powder.
9. At what period of life does rachitis occur? Describe the treatment of rachitis.
10. Describe the treatment of cystitis.
11. What is the common name of guaiacum? What are the therapeutic uses of guaiacum?
12. Give the treatment of ulcer of the stomach.
13. Mention the official bromids.
14. Outline the treatment of acute dysentery.
15. What are the therapeutic uses of manganese?

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NEW YORK, JUNE, 1904

The light by which we see in this world, comes out from the soul of the observer.—Emerson.

PEACE AND GOOD FELLOWSHIP.

IT is pleasant to see brethren dwell together in peace in all their relations, but it is especially so in the benign profession of medicine.

It was to promote this end to some extent and in certain respects, that the *Times* was founded more than thirty years ago. It has tried to ameliorate the bitterness of the past, and bring men together upon the essentials, discarding the unessentials, which are generally the cause of dissension. As to how far it has accomplished its task must be left to others to decide. Some will doubtless admit that there is less malignancy abroad at present than for many years. Extremists have become less partisan and offensive toward one another, and a more catholic spirit pervades the whole medical atmosphere.

If there is to be but one body medical, it must be founded upon principles so broad, that practically all can be embraced by them. The organization must be conducted in such a manner that none will be antagonized by rules that might be considered arbitrary. An ideal society must include all respectable practitioners that are willing to designate themselves simply as physicians. The association which cannot attract to membership a large precentage of those who are eligible and hold them, cannot be considered ideal.

The plan and scope of organization of the American Medical Association, appears to be wise, practical and democratic, and it remains to be seen how it will stand the strain to which it will certainly be subjected.

There seems to be no valid reason why any one who believes in perfect freedom of opinion and action, should not be satisfied with its requirements and unite in its work, as many are doing.

Dr. A. Jacoby, to whom so much is due for working out the peace problem in our own State, says in the *Brooklyn Medical Journal* for May, that "It is proper that medical men should recognize the fact that their welfare rested and rests on their own exertions, and not on any etablished and controlling power outside. It is the democratic spirit that rules the social and political existence of our people which has been governing the action of the medical masses.

No American used to self-government and self-help waits either for outside aid or outside pressure to enable him to overcome difficulties or to attain his legitimate ends, both in politics and in the interest of scientific or professional affairs. It is this democratic principle underlying the activity of our people that has been powerful in the development of the medical profession.

That explains what happened twenty-two years ago, and again this year. Both separation and consolidation were the doings of the medical men of the State. There were spokesmen, but no self-styled leader to initiate the several movements that have shaken the profession to its very foundation. Both parties were fired by what was to them a sacred principle. After nearly a generation we find ourselves on the same platform. The American Medical Association has given official recognition to the fact that cultured men must not be whipped into line by ironclad laws, but are expected to obey the rules of gentlemanly behavior on principle, and that ethics are not the outgrowth of fear but of heart and intellect. What is it to us that there are irreconcilables? A few morbid natures will tell you that you have been "snared" and "betrayed" when you feel like taking the hand of your brother from whom you are no longer estranged by principle or other interests.

After all, it was the medical profession which was unanimous as to the necessity of burying the hatchet which threatened to become a boomerang. Mainly to the young men is due the credit of insisting upon belonging to a united profession. * * * To them belongs the future, to them also the future leadership in the counsels of the profession of the State. Older men who have been through it all have reason to be satisfied with the share they took on either side, both in the battle for what they considered principle and in the reconciliation of the no longer divided parties, and are quite willing to let those work ahead who have both the strength and good will. I know I was correct when a few months ago I said to you all: "After unification we shall be satisfied that nothing will ever sever us again. For there will never be a diversity of principles such as twenty-two years ago. There will be a common faith, aim, and altar. We shall take in the medical brotherhood the place which belongs to us, and work for the ideals—scientific, moral and practical—such as no other profession can realize. * * * It is only to the undivided and indivisible body medical that the American people will look for authoritative guidance in matters of sanitation, education and forensic legislation. What a Greek sage demanded

should and may become true, viz., that the commonwealth will be advised and governed by the physician."

Let us hope that these prophecies may prove correct, and that the profession may be united in principle as well as in name.

It is stated upon excellent authority that it is due largely to dissensions in our own ranks, that the standing of medical men in the community has retrograded rather than progressed as it should have done.

That many of the existing conditions and estrangements are useless and senseless, and extremely hurtful to all concerned, we have no doubt, and they can be prevented by each individual doing unto others as he would be done by!

A retrospective glance at medicine as it was within the memory of many, will convince us that progress is really being made along many lines. This fact could be illustrated by numerous instances.

Much in the past has become obsolete, such as the heroic dosage and other methods which experience has found useless and in some instances cruel.

In these days of wonders, one can scarcely be surprised at anything. The scientist neither asserts or denies without physical demonstration.

It behooves us to try all things without prejudice, and to hold fast to that which is found good.

That all medical men are not saints and some are in the profession solely for gain without regard to principle, goes without saying. It may be unreasonable to expect a higher grade of morality in the profession of medicine than in other professions, but this is expected by most people, and we hope may be realized by the majority.

At the expense of his own pocket, the physician must be foremost in the prevention of disease from every possible cause, and ready at all times to serve humanity—regardless of reward. The unselfishness with which the profession has been credited in the past ought to be maintained in the future by the most strenuous individual effort.

Let us put our good intentions and best efforts together, for in unity there is strength, and with harmonious action on the part of all, the utmost good will come to the greater number.

TABLET TO DR. GUERNSEY.

A tablet in memory of the late Dr. Egbert Guernsey, until his death President of the Medical Board of the Metropolitan Hospital, B. I., was recently unveiled by the Commissioner of the Department of Public Charities of this city.

Dr. Arthur L. Root delivered the address on the part of the Medical Board.

Dr. Roberts Bartholow, formerly a Professor and Dean of Jefferson Medical College, Philadelphia, died in that city, May 10th, at the age of 73. Dr. Bartholow was widely known as the author of many medical works.

SHOULD THE MEDICAL STUDENT RECEIVE CHEAP PROFESSIONAL EDUCATION, BY STATE OR PRIVATE ENDOWMENT OF COLLEGES?

WE have already considered the cost of medical education, and have made the estimate that, under favorable financial circumstances, a school of five hundred students could not receive tuition at a State institution for less than $100 a year per capita for running expenses, nor for less than $200 at a private institution of high grade, conducted on business principles. Such an amount is clearly beyond the resources of many students, and it is a serious tax upon many others. Not much more than ten years ago a medical degree of respectable, if not very high grade, relatively speaking, could be obtained by the investment of about $200 cash and living expenses for two terms, of five or six months each. At present it requires an investment of $400—$800 cash and living expenses for four terms, of eight months each, the student being too much fatigued to make much use of the vacations for earning money, not to mention the difficulty of getting unobjectionable employment for brief periods in the summer months. Various menial positions are, of course, open at summer hotels and the like, but we question the advisability of their being taken by men about to assume a responsible and dignified professional standing.

There is no question but that the cost of a medical education is an obstacle in the way of many desirable young men, and the fact that so many poor boys manage to surmount it, and that we need fewer rather than more physicians, should not be taken too complaisantly. There seems to be no danger of rich men seeking the medical doctorate simply as an empty honor and for the sake of engaging in a dilettante effort at practice. On the contrary, most of the rich men in medicine whom we know are hard workers, diligent students and the most affable of good fellows, so far as their relations with their colleagues are concerned. Occasionally some of them go too far in paying patients, directly or indirectly, for the privilege of operating on them, and it is sometimes argued that a rich man ought to be an idler so as to leave work for others who need the employment more. However, these are weak arguments, especially as the great majority of the medical profession is established upon a bread-and-butter basis, which is regarded as the strongest foundation for any occupation, both with regard to the interests of those engaged and of those served.

Whatever indication exists, then, for the reduction of the cost of medical education should be regarded as purely in the interests of ambitious but poor young men. It is a general economic law that the reduction of the price of anything below its actual cost—including a reasonable allowance for the labor of providing it—is inadvisable, unless under special circumstances. These cir-

cumstances are sometimes commercial, sometimes philanthropic. As instances of the former may be mentioned the sale of articles after or before they are in constant demand, or to attract custom for other staple articles. The wisdom of bargain sales has been seriously questioned, and we may dismiss this aspect of the problem as not pertinent to the present issue. We may point out, however, that the furnishing of medical education below cost, for the sake of the prestige and advertising afforded by connection, as a teacher with a college, is exactly on a par with the sale of a broom for a cent by a department store.

All philanthropic schemes, when analyzed, may be reduced to giving something for nothing in the endeavor to maintain an equality of human enjoyment contrary to the tendency of one human being to surpass his fellows. Having made this analysis, it is a necessary corrollary that any scheme of philanthropy is unwise which simply taxes the provident and industrious for the benefit of the thriftless and lazy, which hampers too much the beneficent tendency to get ahead of one's fellows, or which breeds a spirit of reliance upon artificial aids.

Ambition is very good or very bad, according as the motive is to do the most important work in life of which one is capable, or to do the easiest work for the highest pay. It matters not whether the pay is in money, prestige, ease of life, or otherwise. Nor, on the other hand, is work any less truly labor because it is done with delicately trained muscles rather than with those exerting greater force under coarse co-ordination, nor because it is done with the brain rather than with the muscles. We must not forget, however, that the world is still many centuries removed from the era when direct, muscular effort will be necessary to produce food, clothing and the various other necessities of life, and that no country can exist, much less thrive, unless the vast majority of its inhabitants are engaged in the production of the material necessities of life. The doctor, priest, lawyer, teacher, business man, are parasitic developments upon human society. Whenever they increase in numbers beyond the point of necessity, society in general must suffer—must, in short, be taxed for the support of a redundant element in the population, just as though this element were deprived by blindness, deformity or idiocy from earning its own living.

Personally, we believe somewhat in heredity, though not to an extreme degree. When a youth fitted by several generations of heredity for manual labor, and trained for such life by diet and early exercise, wishes to assume an important professional or business position, it seems to us that the question should be seriously considered how far this ambition is justified by his capability of working in the best interests of society at large, and how far it depends solely upon the selfish desire to get something for nothing. We would even go so far as to question how far society and the individual are benefited by specious success in carrying out such an ambition. Is either the gainer, when a man has managed to make enough money to hold a position in which he is always anomalous, which does not correspond to his natural tastes and which removes him from his family and early friends? We do not intend to argue for a hereditary aristocracy and for permanent classes of society, nor to deny the frequent possibility of self-improvement, nor do we overlook the fact that the humblest surroundings are often the result of accidental misfortune, and that the poorest, crudest boy may, by heredity, belong to a family naturally intended, or rather prepared by generations of heredity, for the highest station in life. We are, indeed, rather inclined to the belief, based on actual observation, that the barefoot boys who have risen to phenomenal heights have simply come back to their proper station in life, and in a surprisingly large number of historic cases this view is corroborated by actual genealogic study. However, we would neither deny the possibility nor remove the opportunity of an emergence into the light from an absolutely dark heredity.

The provision of free medical instruction, or of instruction at nominal charges, is a very different matter from the provision of an ordinary non-professional education. As we understand it, the free provision of a common school education for all is not primarily a charity extended to the individual, but an institution necessary to the continuance of a free and enlightened civilization, and therefore just as much a protection to society as the maintenance of an army, navy, police force, fire department or judiciary. The free provision of high schools is an extension of this policy. A high school education is scarcely a necessity for the maintenance of civilization, but it is useful to a large minority of the community, it involves a comparatively insignificant additional expenditure, and it is most economically provided at public expense, and its usefulness to society at large justifies its continuance. We note a tendency to extend free public instruction farther and farther. Within our own experience, the academic course has been increased by a year, and there is no doubt but that within a generation the equivalent of the present college course will be free in many cities to all who choose to avail themselves of the opportunity.

But we question the propriety of including training for distinctly livelihood-earning vocations within the gift of the State or the individual. If we give free training to the teacher, clergyman, doctor, lawyer and pharmacist, why not to the stenographer, the accountant, and, ultimately, the plumber, carpenter, instrument maker, printer, etc.?

We are inclined to believe that all special training should be under some form of government control, and should not be in the hands of private individuals. Certain vocations, commonly called professions on account

of their peculiarly technical nature, require formal scholastic education. Others, commonly called trades, are best prepared for by a system of apprenticeship of some sort, under State control. In both, however, the student is actuated largely by personal, financial aspirations, however unselfish his intentions in regard to his duty may be. His training is of the nature of an investment, and it is questionable how far his capital should be given to him by the State or by private philanthropy. Yet the very practical consideration remains that every human being should have a fair chance—at least in our own country—and that limitations which are beyond the power of the individual should be reduced as much as possible.

It seems to us that the wisest, and, indeed, the practical, solution of the problem should be by the inauguration of a system of scholarships, which are a gift by the State or the wealthy individual, but which are, nevertheless earned by the recipient, in the sense that he shall have demonstrated his fitness for using to good advantage the opportunities offered.

It is unquestionably a wise act on the part of the State to place general educational advantages before all who choose to profit by them. Such education offers no specious attraction. If, indeed, a reasonably high requirement of routine scholarship is adhered to the work is distasteful or actually intolerable to one not adapted to it.

Scholarships for professional training, on the other hand, should not be handed out promiscuously to all who would like to possess the corresponding diploma and who cannot or who do not want to pay for it. Nor should the charge for such training be reduced to a nominal sum, but should be kept at the cost of maintaining the institution on a reasonable basis of equipment, in accordance with business principles.

The candidate for a scholarship should be fully prepared for the professional training in question, and we refer particularly to medical education. It is not enough that he shall have complied with the minimum legal requirement for matriculation, which is fixed purely as a matter of expediency. On the contrary, he should have fulfilled what is commonly regarded as the maximum reasonable requirement, which is, at present, the completion of a standard college course, or, at least, of such parts of it as may, in accordance with custom, lead to both bachelor's and doctor's degrees on the completion of the professional course also.

We question whether any further examination should be required of the candidate for a professional scholarship unless his standing in college has been low, or unless he comes from a college whose own standing is educationally below par, or unless the scarcity of scholarships requires a further sifting. It is unwise to require an anticipation of strictly professional studies and unnecessary to duplicate tests already made. However, it should be required not merely that the candidate shall have completed some sort of college course, but that he shall have adapted his foundation to the superstructure by choosing appropriate studies. A scholarship should, however, indicate the possession of scholarship, and the retention of the former should be dependent upon demonstration of the latter from term to term.

The adequate provision of scholarships cannot immediately be made by private gifts, unless under certain conditions, nor should the State pay for instruction in private institutions. In general, therefore, the private control of education should be regarded as a survival, and existing institutions should be closed or should pass into the possession of the State, as rapidly as is possible.

ACUTE ALCOHOLISM AND TRAUMATISMS.

MISTAKES in the diagnosis of these conditions are rather deplorably frequent in large cities, and the profession as a whole gets much discredit because of them. The diagnosis of alcoholism is too often made, when autopsy reveals extensive internal injury, to the mortification of the ambulance surgeon and the delectation of the representatives of the lay press.

It is only fair to state that the diagnosis is often difficult and sometimes quite impossible to make, the symptoms of the one condition so often simulating those of the other. Some suggestions are offered, which, it is hoped, may tend to make the differentiation clear.

In uncomplicated *acute alcoholism* there will be the odor of the breath, subnormal temperature, slow and labored pulse and stertorous respiration; the pupils will probably be dilated, but may be normal or contracted—they are not likely to be unequal. The tongue will be furred, and there may be vomiting of food and alcohol. The face will be bloated and flushed if the debauch has been recent; otherwise the skin will be pale and clammy. The motor power will be partially or entirely lost, and the entire muscular system will be involved in the change. There will be drowsiness, merging into insensibility. If subjective symptoms can be elicited, headache, dimness of vision, anorexia, uneasy sensation in epigastrium, lassitude and depression will be complained of. Finally there may be delirium tremens.

As to *traumatisms:* First, there should be rigorous inspection for external marks of violence, which, if they exist, would suggest internal injury of more or less gravity. But the converse is not true, for sometimes very extensive internal injury occurs without any external mark. In all cases of severe trauma there will be symptoms of shock. Primary shock, following immediately upon the injury, will exhibit a subnormal temperature and a small and fluttering pulse. The patient will be faint and trembling, there will be nausea

and vomiting, the skin will be cold and clammy and the sphincters will be relaxed. Secondary shock is manifested by tumultuous heart action, headache, sleeplessness and a diminution of mental powers.

The following phenomena are referable only to *head injuries* and are not characteristic of uncomplicated alcoholism. When blood is wiped away from suspected bony tissue and no fresh blood appears, there is simply a suture; if fresh blood oozes to the surface, there is a fissured fracture, at least of the external plate. Fracture of the cranial base is indicated by hemorrhages from the nose, mouth and ears and ecchymosis into the conjunctiva or subcutaneous cellular tissue; or vomited blood may have been swallowed after fracture of the ethmoid or sphenoid, followed by hemorrhage through the posterior nares; but absence of such hemorrhage does not necessarily indicate absence of fracture. A rare but positive symptom of fracture of the base is the escape of the serous fluid, probably cerebro-spinal in origin, often copious in amount, from the ears, the nose or the mouth. Fracture of the petrous portion of the temporal bone involving the tympanum may produce in the temporal or mastoid region a pneumatocele, a smooth, circumscribed, resonant, non-fluctuating tumor.

Among intracranial affections cerebral irritation presents characteristic symptoms. It usually follows a blow upon the temple or the forehead and is probably associated with encephalic laceration—more especially of cortical tissue. The patient lies on one side, is restless, the eyelids are firmly closed and the extremities are flexed. If the eyelids are forcibly opened, the pupils are found contracted and intolerant of light. The surface is pale and cool or even cold. The patient is irritable and mutters and grinds his teeth when disturbed. The sphincters are not usually affected, and there is no stertor. There will be a rise of temperature in head injuries, except in primary shock and in profuse hemorrhage, when the temperature will be subnormal. Other signs of intracranial lesion are photophobia, with the lids firmly closed, intolerance of sound, the carotids beating forcibly and visably, a blowing of the lips and a flapping of the cheeks, the *Cheyne-Stokes* respiration, rigid contraction of limbs and clonic or tetanic convulsions. Unilateral phenomena, as unequal pupils or ptosis of one eyelid or drooping of one corner of the mouth, point to intracranial lesions; there may with such lesions be found in the two radial pulses a want of symmetry in fulness and strength.

In conclusion, when in doubt, the ambulance surgeon had best proceed as if the case were one of traumatism. And, in a suspicious case, he had best keep the patient under observation until the effects of a debauch have worn off; for symptoms of head injury, which may have been masked by acute alcoholism, would then become manifest.

THE FATHER OF LARYNGOSCOPY.

THAT G. F. Watts, the noted academician, should still be painting in London at the age of eighty-seven, is regarded as a remarkable circumstance. A yet more venerable figure (says a correspondent of the *Medical News*) is that of Manuel Garcia, the discoverer of the laryngoscope, who completed his ninety-ninth year on March 17. He was born at Madrid in 1805, and was the brother of the famous prima donna Malibran and the teacher of Jenny Lind and many other famous singers. Till a few years ago he was actively engaged in voice-training. He discovered the means of observing the interior of the larynx in 1854, and in the following year read his memorable paper entitled "Physiological Observations on the Human Voice," before the Royal Society of London. His observations were made on himself, and in his examination he used two mirrors—a small one fixed on a long stem for introduction into the pharynx and a large one which served at once to throw the light—it was that of the British sun!—on the small mirror and to enable the observer to see the image formed thereon. The discovery was treated with indifference, and for years the laryngoscope was spoken of by superior persons in England as a physiological toy. Garcia's paper fell into the hands of Turck, of Vienna, who, after a short trial, declared that "He was far from entertaining too sanguine hopes about the employment of the laryngeal mirror in practice." Fortunately, the mirrors which Turck threw aside were borrowed by Czermak, the physiologist of Budapest, who quickly saw to what good use they might be put. He substituted artificial illumination for the uncertain light of the sun. The light was reflected and concentrated by a large ophthalmoscopic mirror. He had mirrors of different sizes and finally the art of laryngoscopy was presented in a practical shape to the medical world in a paper which appeared in the *Wiener Medizinische Wochenschrift* of March 27, 1858. Among the honors conferred on Manuel Garcia in recognition of his discovery is the degree of Doctor of Medicine, which was given him *Honoris Causâ* by the University of Koenigsberg.

THE BLIND BOYCOTTED.

THE State of California maintains a home for the indigent blind at Oakland, just across the bay from San Francisco. Thither some seventy blind men and women have repaired. And for an object in life, have set to making brooms, which have been intended to be put in the open market for sale. These brooms thus made and thus sold have formed a fraction of one per cent. of the total number of brooms produced in that community. Thus have these blind people achieved two objects. As just noted they

have found an occupation; and they have in this way been able to earn for themselves the means of getting clothing, and the wholesome comforts of life.

It is a matter of unanimous observation among those who have visited institutions where the poor or the unfortunate are cared for, that idleness or the lack of an occupation is one of the saddest states imaginable, insanity being often the result of such inactivity. Moreover, most of these blind people were laborers before they became blind; and because of their affliction their productive capacity has been reduced some fifty per cent. It can easily be perceived therefore how little the product of the industry of these seventy blind men and women could affect economic conditions.

However, the labor unions of San Francisco have seen fit to boycott the work of these blind people, many among whom themselves belonged to unions before they were blind; and the effect of this boycott is such that retail dealers in that city do not dare to receive and to put on sale the brooms made by them. Labor unions have from time to time done many a thing to indicate a reversion to complete savagery and most brutal animalism; but it is certain that there is no word in any existing dictionary sufficiently forcible to characterize this attitude of the labor unions of San Francisco.

PROPHYLAXIS OF DIGESTION.

IN the excellent book on *The Prevention of Disease*, Dr. Einhorn has supplied a chapter on diseases of the digestive organs; in this field we are, as it were, when attending to Dr. Einhorn, sitting at the feet of wisdom. In a paragraph on appendicitis we are reminded that there is no need to fear the induction of this disease from the swallowing of fruit stones, pieces of bone or fragments of indigestible food. Regulation of the bowels and avoidance of constipation used also to be looked upon as important prophylactic measures, but we now know that even this assumption is unfounded. Of course regulation of the bowels is important; in severe chronic constipation obstruction may result from the occlusion of the lumen of the intestine. However, the only sure way to prevent appendicitis is to remove the appendix. But this should not be done unless there are symptoms of infection of this useless member. The operation is not always free from danger; it would nevertheless be quite appropriate to undertake it during a laparotomy for some other reason.

Dr. Einhorn, in this chapter, makes observations upon the use of stimulants. Tea and coffee in moderation are useful and are not followed by bad effects. Sugar and milk or cream when added to these beverages give to them the properties of food. Total abstinence from alcoholic drinks is unnecessary and indeed, in many respects disadvantageous. In advanced age and in most conditions of exhaustion alcoholic fluids are valuable aids for strengthening the system. How much alcohol may be taken depends upon the individual. This is also the case with tobacco, a kindly, comfortable and beneficient weed in most cases. Some men smoke continuously, and yet reach old age without experiencing any ill effects from the use of tobacco. Others suffer from tobacco poisoning if they smoke two or three light cigars a day. Smokers are advised to smoke only at certain hours and especially after meals. The American custom of chewing is rightly denounced by Dr. Einhorn on the ground that the nicotine in this way is quickly absorbed; and, therefore, symptoms of tobacco poisoning are apt to appear earlier than after smoking.

THE CASES OF PULMONARY TUBERCULOSIS SUITABLE FOR SANATORIA.

IN incipient tuberculosis there are no specially clear-cut symptoms on which to base a diagnosis. If the disease begins at the apex there may be deficient movement and dullness on percussion; but, again, these symptoms may be absent. A more important symptom is the increased sense of resistance, owing to the underlying consolidation, and it is well to accustom ourselves to detect slight changes in this condition. Cattle, in *The Practitioner*, February, 1904, emphasizes these difficulties. It is at this time that diagnosis is all-important, and yet it is just the period when the diagnosis is most uncertain. There are many normal variations; consequently, a physician is better able to make a diagnosis if he is familiar with the condition of his patient's chest before there is any existing disease. The quality of the breath sounds is of especial importance; they may be markedly weaker, both in front and behind, at the affected apex, owing to local blocking of bronchial tubes, while, in other cases, the first sign is a prolonged expiratory murmur, often high pitched or blowing. Heard in connection with crepitations, this prolonged expiration is doubly significant. While fine crepitations can often be heard at the end of inspiration and during expiration, yet we should be careful to make the patient cough vigorously in any doubtful case.

Another important sign which, while not peculiar to tubercular disease, but is often significant, is the so-called cog-wheel respiration. It often indicates commencing consolidation and a new focus, and it should, under all circumstances, be carefully considered. A diagnostic point which is generally unemphasized by the text-books is the fact that heart sounds are often conducted more clearly than usual to the apex of one or other lung, even before definite signs of consolidation appear. The use of the Roentgen ray has been tried with success in some cases of early tuberculosis, while in others the injection of Koch's tuberculin has proved useful.

Cattle believes that the proper cases to be sent to sanatoria are those in which the disease is limited to one

lobe of one lung, without clinical signs of cavity, and where the temperature does not range much above the normal after the patient has been kept at rest for a fortnight. He uses this plan of observing patients before sending them to the sanatorium. Cattle is a little more strict in his restriction of cases to be sent to sanatoria than are the majority of American observers. The results have been so brilliant in many apparently hopeless cases that it is hard for a physician to condemn any case of tuberculosis unless it is well advanced. We are really, in America, just beginning to realize the power and possibilities of sanatoria for the treatment of tuberculosis.

ETHYL CHLORID AS A GENERAL ANESTHETIC.

EVERY drug used for general anesthesia has its disadvantages; the length of time required to secure narcosis, the actual dangers of the agents and the frequently prolonged nausea and vomiting make the question of anesthesia often terrifying to the patient. Montgomery and Bland, in *The Journal of the American Medical Association* for April 2, 1904, give a very favorable report of the use of ethyl chlorid as a general anesthetic. It has two disadvantages—the patient passes under and out of its influence so quickly that the administrator must be unusually expert to avoid too profound anesthesia on the one hand, and the emergence from its effects prematurely on the other, while the other objection is rather trifling, it being that the drug is rather expensive.

The physiological action of ethyl chlorid is still a disputed question. In the clinical experiments of these operators it was found that patients with normal circulatory apparatus there was usually a slight decrease in arterial tension with no decided disturbance of the pulse beat. Respirations were generally stimulated, both in frequency and depth, while there was practically no irritation to the respiratory mucous membrane. Statistics show that it is one of the safest drugs in use. Seitz, of Constance, reports sixteen thousand cases of ethyl chlorid narcosis with but one death, and that in an unfavorable subject. Montgomery states that he has never seen a symptom from its use that rendered him apprehensive.

The use of ethyl chlorid is nothing new, having been tried as far back as 1848. Cumston uses an inhaler composed of an oval rubber cone containing an opening in its roof, through which a tube is secured, by means of which the ethyl chlorid is sprayed into the cone. Several layers of sterile gauze are previously secured over the end of the tube to prevent the anesthetic coming in contact with the patient's face. The time required for complete anesthesia is usually from thirty seconds to two minutes, and Montgomery states that he has never failed to secure operative anesthesia, although complete muscular relaxation is never obtained.

This drug has been used largely in the domain of minor surgery, or where prolonged anesthesia is not necessary; but Montgomery has used it in almost every condition requiring general anesthesia, including such major operations as hysterectomies, and in operations lasting as long as fifty-four minutes. Should the operator prefer ether as his mainstay, ethyl chlorid can be used preliminarily to the administration of that drug, for it reduces nausea and vomiting and diminishes the first stage of excitation of ether narcosis. It is peculiarly adapted to gynecological work, for the short time required for anesthesia, the rapidity with which the patient recovers and the decreased tendency of nausea permits its use in office practice, while it aids the physician by relieving muscular contraction in abdominal pelvic examinations. A nervous woman may be brought quickly under its influence, and the sense of asphyxiation produced by ether or chloroform can be avoided. Certainly the facts in the case now warrant the use of ethyl chlorid as a very distinct addition to the armamentarium of the surgeon.

TUBERCULOSIS AND THE JEWISH FOOD REGULATIONS.

DR. JOHN B. HUBER, in the *N. Y. and Phila. Medical Journal* for January 30, has an interesting communication dealing with this topic. He calls attention to the fact that the region in New York where the population is densest is that on the lower East Side through which Grand Street runs. This region is occupied by the Jews, to the practical exclusion of all other races. In New York there are upwards of 700,000 Jews—from one-fifteenth to one-twelfth of all the Jews in the world; and the vast preponderance of the Jews in New York is to be found in the region just noted, the most densely populated region, it is believed, in the whole world, certainly in either Europe or America. Now if we go on to inquire in which quarter of the city tuberculosis is least rife we shall find that it is this same Jewish quarter where the Jews are more closely crowded than in any other community. Yet this overcrowding means practically that every factor which is considered causative of tuberculosis is active among them in the highest degree—with one exception, that is, the character of the food consumed by the Jews. There is no doubt that this people, no matter how poor they may be, obey with the utmost strictness the Mosaic laws concerning food and drink. It is said on the best authority, that oftentimes the meat which their religious officials reject as unsuitable for Jews to eat is sold to Christians and eaten by the latter without thought of its impurity or its effects upon metabolism. All this appears to the writer to be evidence strongly corroborative of the present day scientific opinion that the alimentary canal is the region most concerned in the spread of tuberculosis within the organism. That even pulmonary tuberculosis results generally from infection, often latent,

by means of bacillus-containing foodstuffs, the lacteals and the lymphatics carrying the bacilli from the intestines through the thoracic duct, the vena cava, the right heart, and finally to the pulmonary parenchyma.

Other factors besides that of the food, which might be regarded as entering into the question—such as the temperate habits of the Jews, and the possibility that they may through many centuries have gradually acquired an immunity to the disease—Dr. Huber believes to be subordinate to the one set forth.

FECAL FISTULAE IN THE TREATMENT OF TYPHOID PERFORATION.

PROFESSOR KEEN has stated that he knows of but one patient who survived an operation for typhoid perforation in which the procedure lasted over one hour. Time is the crying need in this operation, other conditions being the same, the shorter the operation the greater the percentage of the chances of recovery. These patients are in desperate straits; their power of resistance is meager, and a minute may mean eternity. Bartlett, in a striking paper in the *International Journal of Surgery*, for April, 1904, gives his experience with the novel operation of making an artificial fecal fistula in operating to correct this condition.

Years ago when this accident happened in typhoid fever, the attending physician murmured to himself, "All is over," and sadly folded his hands. Then Leyden, just twenty-one years ago, conceived the idea of trying surgical treatment in these cases, while a short time later Mikulicz gave the report of the first successful operation. It was not until 1891 that the first recovery in America was reported by Van Hook.

Intestinal perforation is a constant menace in every case of typhoid fever; no treatment prevents its occurrence, no especial symptoms are prodromal. Fitz has reported that about seven per cent. of fatal terminations in typhoid are due to perforation, while Osler places the number at twenty-five per cent. The percentage of deaths following operations has decreased but slowly. Keen observes that "the results attained by operation raised materially with the week in which perforation occurred"; the fourth week had decidedly the lowest death rate. The patient shows more resistance at this time and the contents of the bowel are less virulent.

Early in 1903 Escher, the distinguished surgeon of Trieste, published his views on the operative treatment of these cases, and he has given the profession matter for serious thought. It was the practice to close the perforation by sutures, and in this way about twenty per cent. of recoveries have been reported. Escher believed that this matter of closing the opening in the intestine was largely the cause of the high mortality, and he found on searching medical literature, that one-half of the patients in whom the opening had not been found and therefore not closed, had recovered after the abdomen had been drained and a fecal fistula allowed to form. He believed it was a surgical fallacy to sew up necrotic tissue, and to confirm his researches he treated four cases by simply bringing the affected loop of intestine up to the parietal wound, leaving it open and allowing a fistula to form. To his intense gratification, three of these patients recovered. Subsequently these fistulae closed promptly, one spontaneously and the other two after secondary suture to the abdominal wall.

There were no adventitious advantages to Escher's operations; he was not favored by the period of perforation, prompt operation or other desirable circumstance. Of course, four cases do not make a surgical procedure a fixture, any more than "one swallow makes a summer," but the idea is a correct one for several good reasons: first the operation can be done very quickly, two stitches being all that are required; secondly the bowel can rapidly empty itself. Keen has emphasized the value of the first point, while the second is clear to any surgeon. The closure of a large perforation is always attended by danger of producing an impermeable constriction, a very serious condition to exist.

Bartlett reports a case in which he followed this advice. He operated about twenty hours after perforation on a colored man and simply stitched the perforation to the abdominal wall so as to permit the feces to have a free outlet upon the surface. The man recovered and the fistula healed subsequently spontaneously. A hernia might ensue, of course, but this is a trifling danger compared to saving human life. Bartlett did this operation in thirteen minutes, which period he believes he can still further reduce with subsequent repetitions.

THE NECESSITY OF THE DIAGNOSIS OF GLAUCOMA BY THE GENERAL PRACTITIONER.

GLAUCOMA is one of the oldest known diseases; even in the days of Hippocrates its symptoms were well defined, but it took the discovery of the ophthalmoscope to appreciate its true nature. Graefe revolutionized the treatment of this disease when he did an iridectomy for its relief, the first time being in 1856. The suggestion of the use of eserine soon followed to reduce the tension of the eyeball. The cause of this condition is not yet as clear as its treatment; whether it occurs only in arthritic subjects, whether it is a result of a change in the quality of the blood, whether it be an infection, or a neurosis, or an obstruction of the intraocular lymphatics, and whether the proximate cause is not the lessening of the angle between the ciliary portion of the iris and the

posterior layer of the cornea and consequently a want of proper filtration, are problems not yet fully settled. Fortunately these questions need not be solved to perfect the diagnosis and treatment.

Roosa, in the Medical Review of Reviews, March 25, 1904, takes up this question again and impresses on the medical profession the responsibility of the general practitioner in such cases. These cases often fall for a time into the hands of the general practitioner, and here precious time is lost. Roosa believes that if this physician will do his duty promptly that cases of chronic glaucoma will become rare. It is in these latter cases that iridectomy is often worse than useless. The clinical picture in the words of Roosa consists of intense neuralgic pain, circumcorneal redness, anesthesia of the cornea, tested by a bit of paper, the great failure in vision, the general turbid look of the front of the eye, and, above all, the hardness of the eyeball, makes a picture which should prevent a diagnosis of iritis, conjunctivitis or neuralgia of the orbit or eyeball. Roosa sounds a note of warning against the use of any applications to the eyeball by the general practitioner, unless he can diagnose iritis, keratitis and glaucoma. Atropine is of wide service in ophthalmology, but in glaucoma it is the greatest menace; it may produce total blindness, or even hasten the disease where it has not yet made its appearance.

When the diagnosis is made the means of relief are so simple that they can be carried on by any patient until the operation is performed. Eserine can be used in the strength of two, three or four grains to the ounce in oil. Roosa prefers castor oil, as the best of the oils as a vehicle, following it by the use of fomentations for a period of not less than twenty minutes, which usually prevents the occurrence of pain, caused by strong solutions of eserine.

Of course, with the experienced oculist there are other refinements of diagnosis to be made in cases of glaucoma; for example, intraocular tumors produce increased tension, but there are other points of dissimilarity.

ALCOHOL IN TROPICAL CLIMATES.

MAJOR FRIBIG, who has served in the Dutch East Indies since 1879, as an army surgeon, is the author of a paper on the influence of alcohol on Europeans in the tropics, which was read recently at Aix-la-Chapelle (*Lancet*, Nov. 28, 1903). "Acclimatization," he says, "is the result of a new regulation of the course of the blood by the vasomotor system. The use of alcohol in a hot climate weakens that system and consequently interferes with the acclimature. Up to 1898, every Dutch soldier serving in the tropics used to receive 100 cubic centimeters of wine daily as part of his ration, but in May of that year, General Van Heutsz, Governor of Atjeh, reduced the allowance to one-half, and, moreover, permitted the men who were so inclined to draw its value in money instead of the liquor. The officers, whose daily allowance was half a bottle of red wine per head, were also given a similar choice. From that moment," continues Major Fribig, "the soldiers, stimulated by the example of their officers, became total abstainers in large numbers, and exhibited a power of resistance against disease and fatigue, as well as an obedience to discipline, such as had never before been seen during any of the wars and expeditions which had occurred in Dutch India. The sick rate at once began to fall, a remarkable diminution being observed even with the first three months."

Major Fribig, who has been a total abstainer since 1894, used formerly to indulge in siestas, but never does so now. The midday heat has no injurious effect on him and he is able to work during the afternoon with as clear a brain as in the morning. While he was a consumer of alcohol exercise under the sun's rays used to exhaust him very quickly, leaving him bathed in sweat and completely worn out. Now he can support the hardest outdoor work without blenching; although forty-six years old, he lately took part in an arduous expedition, and was able to perform the longest and most toilsome marches with comparative ease. It was the same with the other abstainers; but all who adhered to their wine suffered severely, and in many cases broke down altogether. Major Fribig knows a great number of officers and men who consume alcohol, but are nevertheless able to carry out their duties efficiently in time of peace. They are therefore looked upon as fit for active service, but no sooner are they put to the test of hard work than they succumb. Their vascular systems are unable to withstand the extra strain; weakness or paralysis of the heart renders most of them absolutely unfit for duty. Many victims of the alcohol habit become moral wrecks, losing all energy and initiative. Suicides among the troops in Dutch India are invariably consumers of alcohol. Among the diseases which Major Fribig found far more virulent and fatal in non-abstainers than in abstainers are palustral fevers, hematuria, cholera, dysentery, cirrhosis of the liver, neurasthenia, cephalalgia, syphilis, and surgical injuries.

According to C. L. Brownell, author of "The Heart of Japan," published by McClure, Phillips & Co., the death rate for children is lower in the Island Empire than it is in Europe and America. In such places as Tokio, everybody bathes every day. When a child is seven days old its mother shaves its head all but a little bit at the back of th neck at the base of the skull. Later on she experiments with various designs of hair arrangements to find the most becoming. This shaving process continues until the youngster goes to school at about five or six years.

BIBLIOGRAPHICAL

A Guide to the Clinical Examination of the Blood for Diagnostic Purposes.—By Richard C. Cabot, M.D. With colored plates and engravings. Fifth revised edition. New York, Wm. Wood & Company, 1904. pp. 549. Price, $3.50.

The editions of this useful book have rapidly followed each other, and the present one shows about ninety pages of new matter, while about twenty have been stricken out. This indicates the changes that have taken place in a short space of time, the more important of which is the "Romanowsky" method, as applied to routine examination.

Additions have also been made to the chapters on Infectious Diseases and Blood Parasites.

The text is clear and concise and the plates all that can be desired. The work is of the first class, and worthy a place in the front rank of our list of books for diagnostic purposes. The physical part is up to the highest standard of book-making.

A Text Book of Physiology.—By Isaac Ott, A.M., M.D., Professor of Physiology in the Medico-Chirurgical College of Philadelphia. With 137 illustrations. Royal octavo, 563 pages. Bound in extra cloth. Price, $3.00, net. F. A. Davis Company. Philadelphia, Pa.

This work has been written for students by an experienced and successful teacher, and for the under-graduate it is ideal.

The text is concisely and clearly expressed, and its elementary character is maintained throughout, covering the chief facts of physiology in a manner to be understood.

The book can be safely commended to the student about to begin the study of medicine.

The Practical Medicine Series of Year Books.—Issued monthly. Gustavus P. Head, M.D., general editor. Volume IV., Gynecology, edited by Emilius C. Dudley, A.M., M.D., Professor of Gynecology, Northwestern University Medical School, Chicago, and Wm. Healy, A.B., M.D. March, 1904. Chicago, The Year Book Publishers. $1 per volume, or $5.50 for the series of ten.

This excellent publication continues to maintain the standard that was set up in the beginning. Each volume is edited by competent specialists in the respective departments, the whole forming a collection of great practical value at a nominal cost.

Tuley's Epitome of Pediatrics.—A Manual for Students and Practitioners. By Henry Enos Tuley, A.B., M.D., Professor of Obstetrics in the Medical Department of Kentucky University, Louisville, Ky. In one 12mo volume of 266 pages, with 33 engravings. Cloth, $1.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York, 1903.

There is no doubt of the value of this class of books for certain purposes and this is one of the best of its kind. The subject is fully considered and presented in a convenient form for ready use. There are questions for the benefit of students.

The Medical News Pocket Formulary.—By E. Quin Thornton, M.D., Assistant Professor of Materia Medica in the Jefferson Medical College, Philadelphia. New (sixth) edition. Leather, wallet shape for the pocket, $1.50, net. Lea Brothers & Co., Philadelphia and New York, 1904.

This well-known, popular, little book, has been revised to date. There are many valuable features about it, and with such a volume in his pocket, the practitioner need never feel at a loss for a pertinent suggestion. It is *multum in parvo.*

Graves' Disease With and Without Exophthalmic Goitre.—By William Hanna Thomson, M.D., LL.D., Physician to the Roosevelt Hospital, New York; Consulting Physician to the Manhattan State Hospitals for the Insane; formerly Professor of the Practice of Medicine, New York University Medical College, New York. Wm. Wood & Company, 1904. pp. 143. Price, $1.50.

The object of this treatise is to emphasize the fact that the constitutional and general derangements which are characteristics of Graves' disease, constitute the disease, and not the condition of the thyroid gland, or of its accessories, a view with which we quite agree.

The subject is illustrated by the detail of clinical histories. The book will be found of interest to any who have this class of cases to deal with.

International Clinics.—A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles by Leading Members of the Medical Profession Throughout the World. Edited by A. O. J. Kelly, A.M., M.D. Volume I. Fourteenth Series, 1904. Philadelphia, J. B. Lippincott Company. pp. 304. Price, $2.

The publishers have surpassed all former efforts in their attempt to furnish so much high grade material, so handsomely printed, illustrated and bound, for the small sum of $2. This condition is made possible only by the large size of the subscription list, which also proves its popularity.

The volume teems with practical and instructive matter, upon a great variety of subjects, and over one hundred pages are devoted to the "Progress of Medicine during 1903."

Manual of Materia Medica and Pharmacy.—Specially designed for the use of Practitioners and Medical, Pharmaceutical, Dental, and Veterinary Students. By E. Stanton Muir, Ph.G., V.M.D. Instructor in Comparative Materia Medica and Pharmacy in the University of Pennsylvania. Third edition, revised and enlarged. Crown octavo, 192 pages, Interleaved throughout. Bound in extra cloth, $2.00 net. F. A. Davis Company, Philadelphia, Pa.

This work is intended to give in a concise and clear manner, those points which are of value in this department of medicine, without the lengthy detail of some text-books. The consideration is confined to drugs in everyday use and of recognized therapeutic value. The arrangement in alphabetical order is more convenient than any system of classification. In the consideration of the individual drugs, the author has given only the points which he considers essential, and this, very briefly, to accord with his purpose. The book will be found useful.

Mechanical Vibratory Stimulation, Its Theory and Application in the Treatment of Disease.—By Maurice F. Pilgrim, M.D., Professor of Psychiatry in the New York School of Physical Therapeutics, etc. New York Metropolitan Publishing Co., 103 Chambers St. pp. 152. 12mo.

This book has been written for the purpose of pointing out what may be expected from the application of mechanical vibration in the treatment of disease. It

briefly outlines some principles in physiology and indicates the relationship which this treatment is susceptible of sustaining toward them, in order to establish a systematic basis for its application. It states the principles and illustrates their practical application, so as to make treatment by means of mechanical vibration available and effective for the busy practitioner, with the least possible expenditure of time on his part. The book will be found invaluable to those who employ this treatment, and their number seems to be rapidly increasing. From what we know of it personally, we should say it was worthy of investigation.

The Therapeutics of Mineral Springs and Climates.—By I. Burney Yoe, M.D., F.R.C.P., Emeritus Professor of Medicine in King's College, London; Consulting Physician to King's College Hospital; Author of "A Manual of Medical Treatment," "Food in Health and Disease," etc., etc. Chicago: W. T. Keener & Co. 1904. pp. 760. 12mo. Price, $3.50.

The subject of Mineral Springs and Climates is rapidly advancing to the point of practical individualization. The up-to-date physician must not only know the analysis of the spring where he proposes to send a patient, but he should possess the characteristics of the climate where this is located. The author of this volume, who is fully competent for the task, has taken up the study of "The Therapeutics of Mineral Springs and Climates" in such a manner as to both interest and instruct his reader. The work is divided into two parts, and so arranged as to be of value for reference.

The book will be found of service to the practitioner.

A Practical Treatise on Medical Diagnosis for Students and Practitioners.—By John H. Musser, M.D., Professor of Clinical Medicine in the University of Pennsylvania; Physician to the Philadelphia and Presbyterian Hospitals; Consulting Physician to the Woman's Hospital of Philadelphia and to the West Philadelphia Hospital for Women, to the Rush Hospital for Consumptives and the Jewish Hospital of Philadelphia; Fellow of the College of Physicians of Philadelphia; Member of the Association of American Physicians; President of the American Medical Association, etc. New (5th) edition, revised and enlarged. In one octavo volume of 1,213 pages, with 395 engravings and 63 colored plates. Cloth, $6.50; leather, $7.50; half morocco, $8.00, net. Lea Brothers & Co., Publishers, Philadelphia and New York.

This most complete and practical work on diagnosis is maintained to date, by the frequency with which its editions succeed each other.

The subject of accurate diagnosis is vigorously advancing, and this volume will equip the physician in a manner to guarantee successful therapeutics. The fact that a book has reached its fifth edition, shows that it has become a standard authority; and we need only mention some of the features of the present edition.

The arrangement has been completely changed to correspond with the development of the most logical and natural method of approaching a diagnosis in actual practice. Moreover, the entire work has been rewritten to attain the utmost lucidity. Through condensation in the more theoretical passages space has been gained for explanation of practical points in fullest detail. This element and the natural growth of the whole subject, have required a total increase of one hundred pages.

The number of illustrations has been nearly doubled, and fourteen new colored plates have been added, making the total number of such plates no less than sixty-three. It is one of the most lavishly illustrated volumes ever published on this subject. The engravings and plates are all telling, and in connection with their accompanying text they focus a clear picture in the mind of the reader. It is a work that every practitioner and teacher will find of great service.

A System of Practical Surgery.—By Drs. E. von Bergman, of Berlin, P. von Bruns, of Tübingen and J. von Mikulicz, of Breslau. Edited by William T. Bull, M.D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. To be complete in five imperial octavo volumes, containing 4,000 pages, 1,600 engravings and 110 full-page plates in colors and monochrome. Sold by subscription only. Per volume, cloth, $6.00; leather, $7.00; half morocco, $8.50, net. Volume II. 820 pages, 321 engravings, 24 plates. Philadelphia and New York, Lea Brothers & Co.

The second volume of this great work follows so promptly the first, that the completion of the whole may be soon expected.

English readers may thus enjoy the advantage of a complete work of practical surgery, containing the latest developments in all their freshness.

A second edition was demanded in Germany before the completion of the first, so great was the interest in the original issue.

The success of the work in Europe being assured, it was at once translated into Spanish and Italian, but the American version comes from the revised or second German edition, so that English readers have an advantage over Europeans worth waiting for.

The translation has been done under the editorial supervision of Dr. William T. Bull, methods of practice and illustrations being added to suit the readers for which it is intended.

The work in its present form, is regarded by surgeons as reflecting the latest knowledge of the masters, throughout the world. The demand in this country already shows that its merit is appreciated. The second volume covers a Consideration of the Neck, Thorax and Spinal Column. The other volumes are expected to follow in rapid succession.

V. B. Nesfield speaks of the difficulty of boiling water for the use of soldiers while marching or in the field. A chemical method of sterilization to be of value must (1) be certain of effect; (2) leave the water tasteless; (3) leave the water free from any noxious chemical substance; (4) be in a form suitable for foreign travel. Experiments lead Nesfield to believe that chlorine answers these requirements. He has found that 100 gm. of chlorine will sterilize 176 gallons of water and requires 177 gm. (6 oz.) of sodium sulphite to neutralize it. The gas may be rendered portable by liquefying it. For sterilizing small quantities of water it may be put in tablet form. Nesfield is now experimenting with a double tablet so arranged that the chlorinating portion will act 10 minutes before the sodium sulphite is liberated. Sterilization by the method indicated is accomplished in 5 minutes, but for absolute safety 10 minutes should be allowed. Neutralization of the chlorine takes place in 5 minutes.

RETROSPECTIVE THERAPEUTICS

Balsam of Peru Treatment of Compound Fractures.—During the last four years Van Stockum of Rotterdam has treated as follows all the compound fractures at the City Hospital, of which he is the Surgeon-in-Chief. All foreign substances are removed with sterile forceps, but the wound is not washed or disinfected, and no ligature is applied unless a large artery is bleeding. Balsam of Peru is then poured copiously into the wound, and its penetration promoted by moving the limb a little. The fracture is then reduced as if it were a simple fracture, and the wound is dressed with gauze impregnated with the balsam under an impermeable covering. The limb is then immobilized in a plaster cast for three weeks, the dressing being left undisturbed. The temperature always rises at first, but not seriously, and subsides to normal by the fifth or sixth day. At the end of the three weeks the mortified tissues are found mummified, the edges of the wound show no trace of redness or swelling, the bones are found consolidated, and the wound granulating normally. He seldom had occasion to apply the balsam more than once or twice in ninety cases thus treated, including fifty-eight of the legs, four of the thigh, fifteen of the arm, two of the pelvis, one of the patella, two of the calcaneum, and eight of the lower jaw. The treatment was a complete success in all but four cases. In these there was some suppuration, but all recovered without a second operation except in one case, in which gas gangrene necessitated secondary amputation. In eight cases healing was delayed by the presence of a foreign body, causing a fistula, and requiring removal. The effect of the treatment cannot be due to any bactericidal action of the balsam, but rather to its effect in stimulating the living tissues. They corroborate those obtained by Landerer in tuberculosis with cinnamic acid, one of the elements of Peru balsam.

Late Marriages a Possible Cause of the Increase of Cancer.—An editorial in the *Polyclinic*, London, assumes that a child born after his father has lived fifty or sixty years, and passed through many attacks of gout, will not be in precisely the same conditions as one born in his parent's youth. It is surely reasonable to believe that he will in some degree inherit the tissue proclivities which his parent has acquired. Passing to cancer, it may be suggested as a primary proposition that the nearer to the cancer period in the parent a child is begot the greater is the risk that he may inherit a tissue proclivity to the cancerous process. This cancer period is that of middle age and commencing senility. The age at which prudence permits marriage has been steadily rising amongst the more highly civilized nations, and it is amongst these that the recent increase has almost exclusively been noted. A striking incident in this connection is that among the Roman Catholics, who encourage early marriages, there is less cancer than amongst Protestants. This is notably the case in Ireland, as is shown by Dr. Matheson's statistics.

Edema of the Lungs Due to Subcutaneous Injection of Artificial Serum.—At a recent meeting of the Medical Society of the Paris Hospitals (*Bull. Med.*), M. A. Berge made a communication concerning the case of an old man, the subject of arteriosclerosis, with cirrhotic kidney and aortic insufficiency, in whom a subcutaneous injection of a saline solution 7 to 1,000 produced, upon two different occasions, a decided attack of pulmonary edema, with intense dyspnea, anguish, some cyanosis and subcrepitant rales. This case furnished a clinical verification in man of the experiments of Hallion and Carrion, Achard and Loeper, who, in the animal, had provoked edema of the lungs by intravenous injection of saline solution. It proves that the subcutaneous injection of artificial serum, like the alimentary ingestion of salt, is not without danger to patients having Bright's disease and brittle arteries.

How to Determine "the Sufficient Dose."—Contet (*Gaz. des Hôpitaux*) endeavors to show that better results could be obtained with remedies if physicians could employ some clinical sign or signs which would be evidence of the sufficient physiological activity of the substance given in any case. Patients and diseases vary so much that it is impossible to state "the sufficient dose," and this usually has to be determined empirically, often to the detriment of the patient. He employs a method suggested by Gilles de la Tourette, who utilized it in the treatment of epilepsy. Among other symptoms produced by the bromids he fixed upon the disappearance of the pupillary light reaction as the clinical sign to be used as a guide. He commenced with very small doses, and increased until this sign of intolerance appeared. This was considered the evidence of saturation, and the therapeutic dose was governed accordingly. Dr. Contet applies this principle in giving other drugs. In mercury, for instance, the clinical sign is the fever of mercurilization; the administration of this substance for its systematic effects should be carried on with the thermometer as a guide; when fever follows its use the quantity should be reduced just below that which produces this symptom. Nitroglycerin is another example; the clinical sign of sufficient vaso-dilation is the production of slight headache. It would be interesting and useful, Dr. Contet says, for the physician to know a clinical sign of easy observation for every medicinal substance, analogous to those just quoted, in order to be able to judge, otherwise than by therapeutic results, of the activity of the agent employed. In the same way the author advocates the giving of fractional doses until desired results are obtained. Thus in giving chloral or opium the physician is often at a loss as to the size of the dose necessary to produce the desired result. Rather than give a single large dose of uncertain effect, is it not better to divide the dose, giving every hour, half hour, or even quarter hour, until the desired sign of action appears, as relief from pain from opium, or sleepiness from chloral—avoiding, of course, the danger point in dosage?

Suggestions for Febrile Cases.—When for any reason the cold bath cannot be employed, Wynterhas finds the use of cool air, in the manner known as "cradling," and introduced many years ago by Fenwick of London, of service. The patient lying nude in bed, the covers are raised from the body with a cradle that is employed in such diseases as acute rheumatism to remove their weight; both ends being left open, a current of air at the room temperature (60° to 70°) passing constantly over the naked body acts as a sufficient antipyretic. A simple method of applying ice to the head, which he thinks superior to either cold compresses or the ordinary ice cap, is to fill partly a hot water bag with chipped ice and water, and place it under the nape of the neck. This has the advantage not only that it will remain in place, but that the cold reaches the spot where it

will do the most good, the centers at the base of the brain.

Diagnosis of Cancer of the Stomach.—Dr. Oettinger (*Sem. Méd.*) points out the following as diagnostic of cancer following simple gastric ulcer. Noting that cancerous degeneration comes on insidiously, he calls attention to:

1. Presence of constant pain, notwithstanding careful régime, diet, proper medication, with increasing intensity, is almost pathognomonic of cancer.

2. Lack of appetite and refusal of food are noticed in cancer, which are not usual in gastric ulcer.

3. Examination of the vomitus sometimes helps to distinguish between the two.

4. The presence of gastric tumor is decisive.

5. Equally important is a hypochlorhydria succeeding hyperchlorhydria.

The Therapeutic Possibilities of Music are illustrated in a little story told by a writer in the *Medical Brief*. One of his patients had received the last rites of the Church, the pulse had ceased at the wrist, and he had sunk into the coma which usually precedes death.

Some one in the next house struck up the Anvil Chorus from "Il Trovatore," he writes. "I was very much annoyed and distressed, and tried to stop it. Suddenly the pulsation at the wrist began again, the patient gradually opened his eyes and motioned to his sister. She bent low, and he whispered in her ear. 'Te dum te dee; that is my favorite tune,' said he. We roused him, fed him, and to-day, ten years after the event, he weighs 240 pounds." The writer goes on to state his belief that the perfect quiet of the ideal sick-room is not always for the patient's good, and the editor of the *Medical Standard* (to whom we are indebted for the story) agrees with him. The editor says he never went through a long sickness in his life, but he can conceive how many a mind accustomed to activity may be submerged to the point of non-resistance by the "awful calm of the sick-room, with its tiptoeing nurse, whispering friends, subdued light—and entire absence of human interest. Something to stir the senses like music, or to stimulate the intellect like a book—or even a newspaper—should arouse the latent physical forces better than a drug. But these psychical remedies, like the physical ones, must be used in the right time and place."

Horseflesh in Paris Hospitals.—By order of M. Mesureur (says the correspondent of the *Lancet*), the director of the Assistance Publique, a committee has just been appointed to inquire into the question of using horseflesh in the hospitals, under the form of minced raw meat, for the treatment of tuberculosis or other diseases. In support of this idea, the official document sets out various reasons. Firstly, the great increase in the number of prescriptions for minced raw meat, which must be taken from the best parts, whereby the staff are placed at a disadvantage; secondly, the great saving which would be brought about owing to the low price of horseflesh, and finally, the wish expressed by several of the medical officers to make trial of horseflesh instead of beef.

The Physiological Action of the Radium Rays and Their Therapeutic Application.—Scholtz (*D. Med. Woch.*, January 7, 1904) has been experimenting with radium on animals and on patients, and finds that its rays have certain properties in common with the X-rays and the Finsen rays, and that they also differ from them in certain respects. While the general effect of radium rays on the skin resembles that of the X-rays and over-exposure produces similar lesions, important gross and microscopical differences are noted. The visible changes produced by the X-rays usually appear only after the fourteenth day, but the radium rays cause a pronounced erythema in about twenty hours, even after an exposure of only three to five minutes. In sections made at this time a dilatation of the vessels of the papillary layer is visible, and on the third or fourth day there is slight swelling of the connective tissue. The X-rays produce no changes to be detected by the microscope so soon after the exposure. In order to test the penetrative power of the rays, the author fastened the ears of a rabbit one over the other on the animal's back, and then exposed them to the radium for fifteen to thirty minutes. A marked reaction was produced in both ears, and the skin of the back became inflamed and lost its hair. Bacteria are killed by the rays both in agar plates and suspended in fluids. With the radium at the distance of 2 mm. typhoid bacilli were killed in three hours. The author's therapeutic results in cases of furunculosis, lupus, psoriasis and epithelioma are very encouraging, two cases of the latter appearing to have been permanently cured. The great advantage of the radium is the ease with which the substance can be applied to otherwise inaccessible regions.

Dr. G. H. R. Dabbs contributes to a recent number of the *London Argus* some amusing Christmas reminiscences. One of his anecdotes relates to a man and his wife who one Christmas morning came to ask his advice. The man had got a coin in his larynx, and naturally wanted it out. His wife and I turned him upside down and slapped his back, and so on, and I got pretty hot about it all. I looked up, and the wife was laughing. I reproached her with undue levity "at such a time." She leaned back and let herself go, and when her cyanotic face had become a little less like an overripe plum she said, "I can't help it, sir; for once he's got a bit of money where he can't change it for beer." I suggested promptly that we should leave him alone, and turn him into a missionary box. He was nearly upside down when I spoke, and that remark resulted in such a cough-laugh as sent the coin spinning across the room. We set him upright, and his first remark was, "I'm danged if I ever heard tell anything so funny as that." It was, Dr. Dabbs confesses, the most hearty appreciation he ever had, in a not unhumorous countryside, of an attempt at personal comedy.

Dr. Guisez, before the Society of Surgeons of Paris, has given an account of an OPERATION PERFORMED UPON A MAN WHO HAD SWALLOWED A NAIL which lodged in his lungs. It is well known that all previous attempts to deal with accidents of this sort have been very disheartening, and in most cases death has resulted. In the present instance, after all simpler methods had failed, the system was adopted of introducing into the bronchial tubes highly polished hollow cylinders, through which the nail was drawn by means of a magnet, and, according to the reports in the press, during the operation the interior of the patient's thorax was illuminated by a powerful light, which enabled the surgeons to see exactly what they were doing. The final and successful operation lasted but five minutes.

CORRESPONDENCE

THE CORSET AND THE INTELLECT.

To the Editor of THE MEDICAL TIMES:

Our attention has recently been called to that old foe of hygienists, the corset, by the publication of certain statistics in the "Outlook," by Dr. Lucy M. Hall. These relate to the habits of dress and the intellectuality of the young women of a graduating class of an eastern college and are susceptible of tabulation as follows:

	Corset wearers.	Non-Corset wearers.	Total
	16	19	35
Honor students.....	5	13	18
Commencement participants.	1	6	7
Class day orators.....	1	4	5
Prize essayists	none	all	

These statistics are supposed to demonstrate that the wearing of corsets inhibits brain function. We are inclined to the view that this puts the cart before the horse. Not that we would insinuate that the wearing of a corset indicates deficiency of intellect but that those women who are adapted to the average feminine life, naturally follow the habits of dress of their social stratum, while those who have literary and scientific ambitions beyond the average of their sex, are disposed to cut loose from such restraints. Indeed, we may go further and say that the discarding of corsets and the adoption of certain rigid styles of dress are just as much an affectation or following of a fashion as the use of the ordinary articles of wear. Precisely the same difference in customs of dress is to be noted among men, if we contrast those of ordinary business life and those who are essentially students, and amass statistics with regard to white and outing shirts, stylish and conservative collars, etc.

Fortunately, there are many exceptions to all superficial observations. We recall a most distinguished surgeon who welcomed a visiting convention in the nattiest of outing suits, wearing a fancy circingle, and holding in his hand a blue-ribboned straw hat and a cigarette. This man really has the social attributes which many would call frivolous, co-existing with one of the brightest and most hard-working intellects in the world.

Usually, an individual can be judged throughout by one characteristic, but there are many individual exceptions and we are inclined to believe that the person, man or woman, who works when work is in order, who plays with equal abandon when the time for relaxation has come, who delights in observing the little amenities and conventionalities of society, and who endeavors to present himself at his best, in intellect, morals, dress and body, is, on the whole, the most equably developed.

The corset is by no means an unmitigated evil. When not too inflexible and tight, it affords a convenient basis for the various appurtenances of conventional feminine dress, it allows the waist to be well fitted without pressing upon the body too closely. It solves the various problems of suspension of other garments, which cannot comfortably be hung from the somewhat narrow and sloping shoulders of women nor safely be supported by direct girding of the waist and abdomen. Without the corset, a woman must either cut loose entirely from the conventional dress of her sex, follow it in a bungling way, or else construct some sort of a suspensory upper garment which has most of the disadvantages of the corset and some additional ones of its own. We can imagine a slender, breastless woman with a male type of skeleton, getting along very well without a corset. A woman of perfect physical type requires a corset in the interests of modesty and one of redundant flesh sins against common decency if she does not confine and support her figure by some form of corset.

A. L. Benedict.

Buffalo, March 15, 1903.

AN EXTRAORDINARY CASE OF PROLONGED SLEEP.

In the records of prolonged sleep it is doubtful if there is a case more remarkable than that recorded by Dr. E. Herbst, a dentist of Bremen, in the *Berliner Klinische Wochenschrift* for February 1, 1904 (*Med. Rec.*). This occurred in a woman, forty-four years old, living at Gramke, a town near Bremen, who, according to the account, had slept for seventeen years. She had been entirely well for a period of six years previously, although prior to this she had on one occasion slept for thirty weeks. For a brief time before her long sleep she had complained of a peculiar headache and that she was unable to retain anything and to read. She suffered frequently from a sense of great fatigue and often slept for from twelve to twenty-four hours. Throughout the long period of sleep the ingestion of food was not interfered with, and the woman ate and drank what the rest of the family ate and drank, although her food had to be cut up and macerated. For the purpose of eating she was placed upright and supported by means of a hand upon the back. When thirsty, she smacked her lips until given fluid, and she became restless when food was not supplied at regular intervals. She frequently took cold; on one occasion had influenza, vomited food that she could not digest, at the same time sweating profusely, and was thus not immune from everyday ills. When she desired to void the rectum or the bladder she indicated her wish by moaning. The eyes remained closed, motility was unimpaired, she threw herself about in bed and moved all her members—in a word, she behaved like a person sleeping normally. On awakening she had a feeling as if she had slept but a single night, calling to a sister that it was time to arise, and manifesting surprise that a brother who had seventeen years previously been a soldier wore no uniform. To her father she stated that her head was now clear. Her memory was unobscured, so that she was able to recall every detail of her experience seventeen years previously as if it had occurred but yesterday. The eyes appeared to have become somewhat myopic, although she recognized everything before her. She had increased in weight and presented the appearance of a woman of her years. The parietal bones, however, were exceedingly prominent, so that the skull had a peculiar spherical shape. In reply to an inquiry as to whether she had dreamed, she answered in the negative. Her conduct was that of a person seventeen years younger. Speech was at first difficult, perhaps in consequence of loss of the teeth, most of which had fallen out. Walking was difficult, though improving rapidly. The woman awoke from her long sleep at the time of a

fire in the neighborhood of her home, with the ringing of bells. The relatives were not inclined to believe that these circumstances had anything to do with the waking, as the bells had often rung before and violent thunderstorms, of which, as a child she had been afraid, had been without effect.

The record is almost too startling for comment, and we doubt if its equal can be found in the literature. From the context it cannot be determined whether the individual was constantly under professional observation or not, but the communication appears in such a sober and reputable journal, that its authenticity cannot be questioned. A decision whether the condition was one of true sleep or not will depend upon the individual definition of that term. At this distance the record of the case reads like that of one of hysterical narcolepsy of unusual duration.

The First Administration of Ether in Labor. According to Dr. J. Whitridge Williams, it appears that Dr. N. C. Keep was the first American to administer ether in a case of labor. This occurred April 7, 1847, and Dr. Keep reported the case in the "Boston Medical and Surgical Journal," under the title, "The Letheon Administration in a Case of Labor." The report, in the form of a letter to the editor, is as follows:

Dear Sir: On the 7th inst. I administered the vapor of ether in a case of natural labor. The patient was in good health, and in labor with her third child. Five and a half hours having elapsed from the commencement of labor, her pains, which had been light but regular, becoming more severe, the vapor of ether was inhaled by the nose and exhaled by the mouth. The patient had no difficulty in taking the vapor in this manner from the reservoir without any valvular apparatus. In the course of twenty minutes four pains had occurred without suffering, the vapor of ether being administered between each pain. Consciousness was unimpaired and labor not retarded. Inhalation was then suspended that a comparison might be made between the effective force of the throes with and without the vapor of ether. No material difference was detected, but the distress of the patient was great. Inhalation was resumed, but the progress of the labor was so rapid that time could not be found for sufficient inhalation to bring the system perfectly under its influence; still, the sufferings of the last moments were greatly mitigated. From the commencement of the inhalations to the close of labor, thirty minutes; number of inhalations, five. No unpleasant symptoms occurred, and the result was highly satisfactory.

A Perfect Vacuum. Prof. Elmer Gates, Director of the Laboratory of Experimental Psychology at Washington, claims ("Pract. Drugg.") to have produced the first absolute chemical vacuum known to science, and from which he has created rays which exhibit strange phenomena never mentioned as accompanying the Roentgen rays. The method of making the absolute vacuum was so simple and apparently effective that it is worthy of notice. He took a large thick test-tube, made of the hardest potash glass, whose melting point was at an extraordinary high temperature. Into this he poured, while in a liquid form, a much softer glass, whose melting point was at a comparatively low temperature.

Allowing the liquid glass to cool gradually, it formed a solid mass with the tube. After attaching a suction piston to the mouth of the test-tube, the whole mass was slowly heated for about thirty hours. At the end of that time the softer glass became liquid again, while the tube still remained solid. By forcing the piston outward the greater part of the molten glass was expelled. Enough was allowed to remain at the mouth of the tube to seal it by cooling in that position. Back of this stoppage there was left a space where there had never been the least quantity of gas, hence, a complete and perfect vacuum.

The New German "Academies for Practical Medicine."—The Prussian authorities are planning an institution in connection with the public hospitals in cities, which is to afford graduate instruction and train physicians in specialties. The city of Dusseldorf is building a new public hospital, and arrangements are being made for the new "Akademie fuer Praktische Medizin" to be connected with it. It will have facilities for instruction in internal medicine, surgery, obstetrics, infectious diseases, and a fifth department devoted to pathological anatomy, etc. There will be sub-departments for eye, nose, throat and ear work, for children's diseases, cutaneous and nervous affections, and treatment of accidents. Physicians who wish to take up a specialty will be installed as assistants in the special departments, and after serving a certain number of years, will be given a certificate of proficiency in their specialty. The training of nurses for the sick is another task of the academy, with the holding of free graduate courses for all physicians, and instruction of the public in matters of hygiene, but the principal purpose for which it is organized is to perfect the education of the graduates from the medical colleges, who are not allowed to practice until they have served a year in some hospital or allied official institution.

The Care of Poor Children in France.—Napoleon did not forget the children, and he planned a scheme of education on a "broad, liberal basis," which forms the foundation of the educational system in France at the present day. The Napoleonic system is described as embracing "a sort of official fresh-air curriculum." A considerable percentage of the children are sent in batches to the country for twenty-one days. In the forests of the Jura the boys chop wood, dig, weed, and hoe "with all the zest the Paris gamin alone can bring to such unwonted pastimes." In the green pastures of the Vosges, the girls feed poultry, learn to milk cows, make hay, and help in the garden and orchard. The boys, too, who are sent to the sea are said to add fishing to farm-work. All this, it is needless to remark, displays careful forethought and admirable organization. The care of poor school-children is, however, not confined to giving them three-weeks' holiday every year. The way in which the "French republic fulfills its duties to the humblest of its children is perhaps more complete and more thorough than in any other administration in the world." Both the feeding and the clothing of the poorer children are looked after. Attached to every school is a special fund entirely devoted to supplying creature comforts to the more needy of the scholars.

MISCELLANY

A rapid and effective way of cutting short a cold in the head is said to consist in gently passing into the nasal fossae a little roll of absorbent cotton dipped in glycerine.

The Illustrated Review of Physiologic Therapeutics offers the sum of fifteen hundred dollars in cash prizes for the best essay on X-rays in medicine and surgery, the first prize being $1,000.

Twelve hours from the time of delivery the patient should have urinated. If no distress is occasioned, the physician may wait three hours longer before the catheter is passed, not longer than that time.

At a baby show in Paris recently the judges decided that out of 150 none was healthy enough to take a prize. The mothers assaulted the judges, and all hands, including the babies, landed in the police station.

Rev. Dr. M. Mackenzie says, in "Mercy and Truth," that the Chinese mode of life as a whole excels that of European countries; that Chinese clothing is more hygienic than that of Europeans, and that opium smoking in China is less of an evil than alcoholism in Europe.

The London "Daily Mail," under the heading "Professor of Motherhood," says: "Battersea Council's Health Committee has decided that an additional lady sanitary inspector, at a salary of £110 a year, shall be appointed. Her duties will be to instruct mothers in the feeding of infants and the nursing of them in illness.

An association of California vineyardists has been formed, to be known as the American Grape Acid Association, for the purpose of solving the problem of the production of cream of tartar from California grapes. Any person who can find out this secret will be paid $25,000, says Andrea Sharboro. The present value of tartaric acid wholesale is 31 cents a pound.

Sir Dyce Duckworth does not think that we are likely soon to become a gouty nation. He says: "The ancestry, diet and habits of the citizens of the United States for the most part are such as will long prevent the onset of gout in that climate. But little wine is used, the beer is light, and much water and weak tea is taken. The alcohol chiefly used or abused is rye whiskey."

Among the 8,231 Americans who last year took their own lives, 350 were physicians—nearly 5 per cent. of the total number. Figures for Europe show an equally high percentage. The beginning of one's career over a cadaver in the dissecting room, the continuing of it in the study of disease, and the more intimate study of man, seem to tend to disillusionize the medical man about life more than is the case with ordinary occupations.

The Latest Aid to the identification of criminals in France is the X-rays. The head of the Radiographic Laboratory at the Salpetriere Hospital has collected eight thousand negatives of fractures and other internal anomalies. The other hospitals of Paris probably contain twice as many more, and it has been suggested that these or similar records might be of the greatest utility, where other indications fail, to establish identity. It is even proposed that a system of preventive radiography should be enforced, every criminal being subjected to the X-rays as soon as arrested.

The College of Physicians and Surgeons of the Province of Quebec is reported to have recently decided to lengthen the medical course to five years, and furthermore voted that British licenses should be no longer recognized in that Province. A more complete preliminary education as represented by the B. A. degree was also advocated for students of medicine.

The Two Healthiest Counties in the United States are Suffolk, L. I., and Berkshire, Mass. Inhabitants of the island show great longevity. When the climate of Long Island is better known, fully understood, and medical men appreciate the fact that this island is really a pier extending one hundred miles into the Atlantic Ocean, and attached to the greatest city in America, Long Island will reach its manifest destiny and become one great health resort.

Goepel (*Ctlbelt. f. Chirurgie*) says that the annoyance of the easy tearing of rubber gloves and of the permeability of linen gloves can be overcome by wearing the linen gloves over the rubber ones. The closely woven threads of the latter permit the instruments to be well held and prevent sharp instruments from tearing the rubber, and, on the other hand, the rubber gloves prevent the access of germs from the skin to reach the linen gloves. He warmly recommends this method of operating.

Some Curious Experiments have been made at one of the royal philanthropic institutions in Copenhagen. For some years back the seventy boys and girls in the place have been carefully weighed every day in groups of fifteen and under. Thereby it is proved that the children gain weight mostly in Autumn and in the early part of December. From that time to the end of April there is scarcely any increase in weight. More remarkable still, there is a diminution till the end of Summer.

Of the late Sir John Burdon-Sanderson's absentmindedness many stories are told, of which the following is a specimen. His laboratory assistant, who watched over him like a nurse, left him one day standing at a table with a frog on one hand and a sandwich on the other. When he returned he found the professor still absorbed in thought, apparently studying the sandwich, for the frog had disappeared. The animal was never found, and it was inferred that it formed the luncheon of the professor.

The First Issue of a new journal called the "Journal of Infectious Diseases" recently appeared. The new magazine is devoted to the publication of original investigations dealing with the general phenomena, causes and prevention of infectious diseases. It has been established in connection with the Memorial Institute for Infectious Diseases founded by Mr. and Mrs. McCormick in memory of their son, who died of scarlet fever. It is estimated that the annual cost of publishing this journal will aggregate $15,000.

It is a surprise to many to know that the great city of Paris has no garbage to dispose of, and that the most expensive and luxurious tables in hotels, restaurants and private houses systematically supply the viands of dining-rooms and kitchens of a grade lower than their own, and those of the second grade to a third, and so on until the nourishment of the city is tapped, sapped, boiled and broiled out of everything that has a fibre or amorphous paste in its composition. This is an illustration of the possible economics of a great city.

INTERNAL URETHROTOMY FOR STRICTURE AT OR NEAR THE BULBO-MEMBRANOUS JUNCTURE.

BY CHARLES C. MILLER, M.D.,
Professor of Surgery, Harvey Medical College, Chicago, Ill.

GRADUAL dilatation has a very firmly established position, as a most excellent means of treating urethral stricture, in the opinion of many surgeons, who do not treat many strictures in this way.

Gradual dilatation is no doubt the safest and simplest method of treating strictures within three or four inches of the meatus, but in this class of cases internal urethrotomy is looked upon as a good plan of treatment by those men who do not perform the operation of internal urethrotomy.

Gradual dilatation is most commendable as a means of treating stricture, when the instruments used in the treatment need not be carried into prostate or bladder in effecting the dilatation.

A stricture of several years' standing situated within an inch of the prostate cannot be treated satisfactorily by dilatation in very many instances.

Dilatation of a firm cicatricial stricture, especially of the deeper portion of the urethra, can only be accomplished slowly, and instruments must be passed many times during the course of the treatment.

We can sterilize an instrument, the meatus, lubricants and our hands, but we cannot sterilize the area about the stricture, and this inflamed infected area will prove a factor for harm, which few sufficiently appreciate.

When a perfectly clean sound or bougie passes over this infected area about the stricture, it can spread infection beyond in one of two ways. Germs may be picked up by the instrument and carried beyond the infected area, or an inflammation may be excited by the mechanical irritation of the instrument, and this inflammation may spread the infection over the short intervening portion of the urethra into the prostate or bladder.

The bladder of a strictured patient is much more likely to develop an inflammation than that of a healthy individual, and the nearer the stricture to the bladder the greater this likelihood for inflammation to develop.

The patient with a stricture has almost invariably a bladder which does not perfectly empty itself. He has after urination more or less residual urine retained in the bladder.

The bladder, which retains more or less urine after urination, differs from the normal bladder in that it is no longer self-draining.

It is about as difficult to infect a healthy uninjured bladder, as it is difficult to prevent an infection of a bladder which retains more or less urine after urination, and which is no longer self-draining. I might better express myself by saying, that a dirty sound may be carried into a healthy bladder with less danger of infection developing, than if a clean sound be carried over an infected area into a bladder which never perfectly empties itself.

No matter what precautions you take as to the agents used in a dilatation, you may, and not infrequently will have, inflammation, at and posterior to the site of the stricture, develop.

In my own practice, I not infrequently invade the peritoneal cavity surgically, and from a successful experience of this kind over a considerable time feel that I comprehend the requirements of aseptic surgery, yet I must admit, that I have had many cases of infection of bladder, prostate and seminal vesicles, following dilatation of strictures in the deeper portion of the urethra, and in cases where I have taken all possible precautions to prevent external infection from any source.

There is another form of infection to which I wish to particularly call attention. That is this form of infection, which accompanies treatment of strictures by dilatation, and which does not manifest itself by striking symptoms of inflammation, but in which the patient gradually loses flesh and color.

You begin dilatation upon a man of ordinary health. You will notice after a time that he is looking somewhat pinched, his color is bad, his tongue coated, he suffers from lassitude, he is morose and under weight; if you had taken his temperature regularly after each sounding and at rather frequent intervals, you would have found that he had been running a slight temperature. This patient has suffered a chronic urethral infection, and it is hardly to be looked upon as unimportant.

No intra-urethral instrumentation should ever be practiced without efforts being made to render the urine as aseptic or antiseptic as possible. Urinary antiseptics of recent introduction are no doubt more efficient than those which have been in use for years.

A stricture in the deeper portion of the urethra is not dilated in many instances as readily as a stricture of the penile urethra. This I believe is due to the presence of more cicatricial tissue in the perineal stricture.

When the urinary stream is forced from the large prostatic urethra into the smaller membranous urethra, it impinges with no little force upon the mucosa. The diseased mucosa allows of capillary extravasations and we have as a result irritation and the increased deposit or development of connective tissue.

In my clinical cases before my students, I have frequently had the opportunity to call their attention to the large amount of connective tissue exposed by perineal section.

Perineal section is no doubt the most radical plan of treating all strictures of this portion of the urethra, which are below fifteen of the French scale, and an operator is justified in using it if he so elect.

Strictures above fifteen French, and those patients with stricture below this number, who will not or cannot remain about a hospital for a week or two, are best treated by internal urethrotomy, excluding for dilatation only those strictures of very recent development, which will respond to a very few and careful passages of the sound.

By urethrotomy we can overcome a stricture of the urethra with the least possible instrumentation, and the work should be done only after adequate preparations have been made for it.

Minimizing the after-treatment will, I believe, in the course of time prove to be a valuable advance in the management of these cases after operation upon the perineal urethra.

Operators influenced by noting the invariable recontraction of a stricture after dilatation, have felt that this would result after urethrotomy, if the tendency to recontraction, should any exist, be not overcome by the rather frequent use of sounds.

After urethrotomy in the penile urethra, one can recommend the regular passage of sounds over a period of several years, but I believe it is better after urethrotomy in the perineal urethra, to recommend the passage

of instruments into the bladder only often enough to reassure one that recontraction is not taking place.

If recontraction occurs, it will not be rapid after healing of the wound made in performing the urethrotomy.

There is usually little or no tendency for the wound made in the perineal urethra to reunite, gaping and the force of the urinary stream preventing this.

After dividing the perineal urethra for stricture, I sound the patient only once a week until healing of the wound occurs. From three to four weeks must pass before the wound made in an internal urethrotomy will completely heal.

Repeated experience has led me to discontinue the plan of frequent sounding after urethrotomy, as is universally recommended. While my results cannot be taken as conclusive, they have been to me at least most encouraging.

In July, 1901, I performed internal urethrotomy upon a patient, dividing two strictures in the penile urethra and one in the perineal urethra. At this time I practiced sounding upon these patients every two or three days, as was recommended by other surgeons. This patient objected so vigorously to the sounding that I was forced to give up the first effort to sound him without getting the sound as far as the perineal urethra. During the next three weeks I made several efforts to sound the patient, but never succeeded in passing a sound into the urethra for any distance owing to the objections of the patient. This patient then left the city and received no treatment for six months. He then returned to me and after cocainizing the urethra, I passed a thirty-two French sound into the bladder without the least difficulty.

In December of the same year I operated upon a perineal stricture, and the patient submitted to sounding but twice, and then disappeared, and I saw no more of him for over eight months. He then visited me in my office, and I found that a full-sized sound could be passed without noting the least resistance.

In a third case after internal urethrotomy the patient bled freely and was afraid to return for sounding. I saw him three weeks after the operation and passed a thirty French sound into the bladder. Not a trace of blood followed the sounding and there was no resistance to the entrance of the instrument. I sounded this patient again in four months without noting any resistance, and then did not sound him for nine months, when I sounded him again without meeting any resistance in the urethra.

My dispensary practice has been marked by a number of instances where patients have submitted to but little sounding and yet I have never found a case of perineal stricture where reunion of divided tissues occurred after urethrotomy.

In the last three years I have cut between forty and fifty strictures in the perineal urethra by internal urethrotomy, and I have never found a case where reunion occurred or decided recontraction after the operation.

Cases which will submit to sounding have all been sounded at least once a week for from four to seven weeks, and in the earlier cases this interval was shorter between soundings. As time has passed I have lengthened the interval, and now am fully satisfied that once a week is often enough.

The objections to internal perineal urethrotomy consist of the fear of hemorrhage and sepsis. Both of these objections were of importance before we knew how to combat them effectively.

Hemorrhage needs no attention in the great majority of instances. After two perineal urethrotomies I have had hemorrhage, which was persistent, and which required controlling. In neither case was there a free bleeding which could be attributed to the division of a large vessel, and I am inclined to hold the opinion that it was due to the division of vessels whose walls could not retract and contract owing to being involved in the cicatricial tissue of the stricture.

Persistent bleeding from the perineal urethra can be controlled by properly applied pressure. To accomplish this we should improvise what Otis termed "a perineal crutch." This can consist merely of a padded pole, which is allowed to rest against the footboard of the bed, and which is caused to exert pressure upon the perineum of the patient, by drawing the patient down upon it.

In using perineal pressure with the padded pole, the pad should be large, so as to press upon the entire perineum, and the pressure need not be great. The patient can lie in comparative comfort, and if a nurse is at hand to watch and see that the pressure is kept up, the patient may be allowed to fall asleep.

Whenever a patient becomes excited after urethrotomy, and he is confined to a hospital, a small dose of morphia should be given.

Perineal section for stricture appeals to me as being more radical and more likely to be followed by permanent results, so that, when a patient will consent to it, I prefer it as a means of treating all the more severe forms of perineal stricture.

During perineal sections I have in three instances found that the divided surfaces of the cicatricial mass of the stricture, which surrounded the urethra, bled persistently in spite of hot applications, and applications of sponges moist with a solution of the active principle of the suprarenal glands, and even the application of the actual cautery. No large vessels were bleeding in these cases, as all the tissues were directly in sight, and this was apparent upon inspection. These cases could only be controlled by mass sutures.

Where the perineum has not been opened, as I have said before, moderate pressure will control any bleeding following internal urethrotomy.

The next objection to overcome is the imperfect drainage and the consequent dangers of sepsis.

Large lymphatic spaces are opened according to some in the operations upon the urethra, and it is a conspicuous feature of the convalescence of the patient following urethral incisions, to have a febrile reaction.

This reaction will be reduced by the free use of urinary antiseptics, and by performing a clean operation, but even where every care is exercised we will have a febrile reaction, which may prove alarming, as it will be accompanied in not a few cases by rather marked constitutional symptoms.

In many conditions a febrile reaction is not marked by decided constitutional symptoms and the physician is surprised to find the thermometer registering from one to three degrees of fever. This is not the case after urethrotomy. With the slight rises of temperature we have the patient becoming restless, his eyes bright, the pupils wide, and vomiting may occur. These constitutional symptoms seem to be a clear call for treatment, and it is an easy matter to relieve them by causing a prompt fall

in the temperature. This fall in the temperature must be secured by a removal of the cause.

The irrigation of the urethra with a hot sterile normal saline solution is almost invariably followed by a prompt fall in the temperature. I have also used boric acid, carbolic acid, lysol, creolin, bichloride and formalin solutions for this purpose. Of all I prefer the formalin solutions, as they seem to cause a very prompt fall and there is a less tendency for the temperature to rise again. These solutions can be used to an advantage from two to six times in the twenty-four hours. They are not unpleasant to the patient, but rather the reverse. The washing out can be done without passing a catheter, the irrigator being merely supplied with a sterile glass tip, and this introduced into the meatus. The solution flows in and out of the urethra and washes out all blood clots and retained materials. I have had used in these irrigations from one to three quarts at an irrigation. Less than a quart is hardly likely to accomplish the desired object, more than this amount will not do harm. The strength of the formalin solutions is important. A one to five thousand solution may be tried; if it is irritating to the urethra, the solution can be diluted to one to seven thousand. I have come to expect no irritation from the latter strength in any of these cases. The irrigations act chiefly as a means of securing more perfect drainage.

The urinary antiseptics, which are reputed to set free formalin in the urine, have come in for much praise from operators. They should be given freely after all these operations as well as in the preparation for operation, but they will not prevent this reaction of which I have spoken.

The internal operation in the membranous urethra can best be performed with the Maisonneurve instrument. This is an instrument which has been in use for many years. It is used with ease even in strictures of the smallest caliber.

It is supplied with a filiform, which acts as a guide to the remainder of the instrument. Such a filiform will pass any stricture, which can be passed. It is not necessary to use any form of anesthetic in the passage of the filiform. Hours can be spent, if necessary, in passing the filiform, with the knowledge that after it has entered the bladder the remainder of the operation will be easy. In my own practice four hours have been spent by myself and assistants in passing one of these filiforms. Usually even in tight strictures the filiform can be passed in to the bladder with ease. In a half dozen cases of retention I have had the filiform slip through the stricture almost as readily as though the urethra had been free from any stricture.

I have in more than one instance performed the operation of internal urethrotomy without any anesthetic at all, but it is better both for operator and patient, if an anesthetic be used.

Nitrous oxide or ethyl chloride can be used in these cases, as the time of anesthesia is brief. These agents have an advantage over chloroform and ether in that the patient is quickly anesthetized, and recovers quickly without the bad effects of the chloroform or ether subsequently.

The filiform of the Maisonneurve guides a staff into the bladder, and a blunt tipped knife is passed along the staff into the bladder, dividing any strictures met with in its passage.

A very large per cent. of patients with a chronic urethral discharge will be found to suffer from stricture. Every surgeon who systematically explores all such cases for stricture will be struck with this fact. In a period of 38 days, in my private and clinical practice, I saw 53 patients suffering from chronic urethral discharge. Three of these (clinical patients) refused to be explored, and of the remainder only one was found to be free from stricture, a thirty French sound being passed into his bladder without difficulty. He was mentally unbalanced, and was in the habit of catheterizing himself with a very dirty English catheter.

Of these cases twenty-two were treated by internal urethrotomy, and in eighteen of these the operation was performed under general anesthesia, and in all stricture or strictures were demonstrated after the patient was under the influence of the anesthetic. The remainder were started upon a course of treatment by gradual dilatation. None of the cases had strictures of a caliber above twenty-five French.

I have atttempted in this article to point out the difficulties and dangers of treatment of strictures of the deeper urethra by gradual dilatation. I have said nothing of the accidents likely to be suffered, and would have my readers remember that there is danger from such. Inflammations and infections are not to be considered in the light of accidents as no precautions we can take will insure against them in all cases.

I have then briefly called attention to my reasons for preferring internal urethrotomy, and have outlined the plan of treatment which has proven most satisfactory in the face of hemorrhage and constitutional reaction.

I would again impress my readers that the constitutional symptoms will in the great majority of instances be all that will call for treatment in the after care.

I hope too that further observations will be made by other men as to the value of minimizing the after treatment by sounding. The feeling of the patient is a strong incentive for the minimizing such treatment, but other disadvantages, which I have not dilated upon, make it desirable if possible to minimize the frequency of sounding.

One of the notable features of the glass pavilions at the Philadelphia Hospital is the treatment of the ventilation problem. Warm air forced into the rooms a little above the heads of the patients finds an outlet as it cools, at about a foot from the floor. Apropos of this, the *Public Ledger* says: If Philadelphia or any American city, should be suddenly covered up by some catastrophe and then explored, say 100 or 200 years hence, as the archeologists have uncovered the ruins of Pompeii, the most surprising thing to the people of the future would be the lack of ventilation in the American house. Farm journals devote much space nowadays to ingenious plans for ventilating chicken houses; the cows in a modern dairy are provided with an abundance of good fresh air; but the architect has neglected the human occupant of the house. The ordinary house of an American city is a barbarous survival in civilization. It may be a model of convenience, the plumbing may be perfect, the ornamentation is, perhaps, artistic and pleasing; but in the great essential of furnishing the tenant with fresh air it is an anomaly—almost a crime.

Frankel speaks highly of the use of pastilles of yeast in the treatment of vaginal discharges of all kinds. He reports five stubborn cases cured by their use. They are cheap and easy to employ.

GONORRHEA AS SEEN AND TREATED BY THE GENERAL PRACTITIONER.

BY M. E. FITCH, M.D.

AS a matter of practice we can divide the urethra into two parts, viz., the anterior and posterior. The anterior portion is that part which lies between the external meatus and the compressor urethræ muscle; the posterior part is the remainder of the urethra to its entrance into the bladder. It is time that anatomists and surgeons divide the urethra into three portions, the prostatic, the membranous and spongy, but this division is unnecessary in the treatment of gonorrhea.

This disease is at once one of the most neglected of diseases by patient and physician, and also one of the hardest to treat satisfactorily. Its serious nature is now more understood, and the physicians who claimed it was no more than an ordinary "cold" have silenced their misleading statements. The discovery of Neisser in 1879 of a bacterium which he named the gonococcus, shows the disease is a separate entity, although owing to the early defects in this work, the pathological importance of this discovery was discredited for a time, particularly about the years 1884-1890. This was due to the fact that other bacteria are found in the human urethra, which could not be distinguished at that time from the coccus of Neisser. The use of cultures or artificial media, and the production of the disease by inoculation were not employed largely at that date. It is only in recent years that convenient culture media have been devised, while in Germany human subjects for inoculation have been procured.

We know now that we cannot identity the gonococcus by its tinctorial or morphological qualities, and hence the work must be built on the basis of pure cultures and inoculations, still we have also learned that while probably 90% of cases this coccus is present, yet there is a percentage of cases other bacteria are found, and even a purulent urethritis has followed as the apparent result of sexual contact. Hence Belfield divides the factors producing purulent urethritis into four classes:

1. Venereal infections by the gonococcus.
2. Venereal infections by other pyogenic bacteria.
3. Non-bacterial venereal urethritis, perhaps from gonococcus or other toxins.
4. Auto-infection of the urethra from colonies of bacteria (gonococcus or other) in various recesses of the genital canal.

We know now that marked constitutional disturbances may appear with the urethral infection without the appearance of secondary foci in other tissues. Renal albuminuria has been noted in as high as twelve per cent. of cases while gonorrheal rheumatism may either be a gonococcus blood infection with metastases in the affected joints, or it may result from the toxins. Practically when pain with or without swelling appears in various joints during a gonorrhea, look for metastatic infections; examine the iris, the retina, the pleura and the muscles and tendons for trouble.

Hence we can conclude that gonococcus infection need not be a local disease; in fact, it is often accompanied by toxæmia, and it may invade the entire sexual and urinary tracts and peritoneum; it may be carried by the blood, and establish secondary infection of all serious membranes, periosteum, tendon-sheaths, muscles, skin, iris and retina.

Bockhart in 1886 identified three varieties of cocci not that of Neisser's. The first he called "pseudo-gonococcus," which only shows distinctions from Neisser's bacteria by the culture. It may be the latter coccus modified by environment, but this is yet unproved. Again the staphylococcus aurenæ has been found in large amounts, while a third unnamed bacillus has been detected by French observers. Even in the normal urethra there are found many bacteria of the sterptococcic and staphylococcic variety, we know that pus need not be produced by bacteria; suppuration is merely the reaction of the tissues to certain irritants.

Gonorrhea and purulent urethritis therefore are not synonymous terms by any means, for the former disease is produced by the gonococcus, while the latter may be due to a variety of causes. It is necessary for clinical diagnosis that the existence of a severe urethritis and pus cells containing diplococci decolorized by the grain method are found, but really cultures should be made where we must make critical diagnoses. Undoubtedly the treatment for gonorrhea does no harm to a patient's anatomy, still there are cases where the physical features are overshadowed by the moral, and it is wrong for the physician to decide on the origin of these cases, as the result necessarily of criminal connections.

There is now a clear cut distinction between gleet and chronic gonorrhea; recent researches have emphasized the fact that a gleet may persist for months, with simply the common pus bacteria and no gonococci, while, on the other hand, chronic gonorrhea may exist after all gleet has ceased. Here the term latent gonorrhea is more expressive of the condition. This condition may be detected by a gumming of the meatus in the morning, or from the pus in the urine, but the better way of diagnosis is to collect the semen, which will contain these foci of infection.

Noeggerath taught that gonorrhea was never cured, and this belief still lingers in the professional mind, but we must remember that these conclusions were reached many years before the discovery of the gonococcus, and hence there was no possibility of a positive diagnosis. Goll has proved that the gonococcus disappears in ninety per cent. of cases from the genital canal in from three to six months after inspection, and that it persists for two years or more in less than three per cent. of cases. Recent extended clinical observations have confirmed these findings, and cases of longer infection are extremely rare. Again, another of Noeggerath's speculations has been disproved, attacks of gonorrhea do not involve necessarily masculine sterility, for example, Venzler, in 1897 followed the history of 474 men who were treated for gonorrhea, and who subsequently married. Eighty-seven per cent. of these men became fathers within three years. As twenty per cent. of marriages in general are sterile, it would seem that these cases were at least up to the average.

I will first give my views and experiences in the treatment of gonorrhea, and then report some cases illustrative of various interesting points. When it comes to the question of new remedies and new methods, we find that the newer the remedy or method, the more successful seem to be the results, but as time goes by the disease does not seem to respond to the much vaunted treatment. It would seem that the ideal cure for gonorrhea must come through the blood current, but as yet this remedy is lacking. When we study the anatomy of the genital canal with its numerous

glands, and narrow mouthed lacunae, we realize that it is difficult to destroy the gonococci, for they so quickly invade the subepithelial tissues. I will dismiss consideration of all old time remedies, and take up at once the newer forms which have been praised so greatly of late years. In the first place we want, of course, a drug that has the power of destroying gonococci, at the same time we realize that the drug should also have the power of penetrating mucous membranes. The first drug to which the profession turned was the bi-chloride of mercury, but solutions which were strong enough to destroy the gonococcus, destroyed also the urethral mucous membrane, and solutions which did no harm to the urethral mucous membrane were just as harmless to the gonococcus. For some years the permanganate of potassium has been largely employed. It has no specific distinctive power upon the gonococcus, but is rather a general cleansing agent. Curiously enough this permanganate irrigation method which was highly endorsed by Jarret, of Paris, is a return to a remedy which was employed in gonorrhea many years before the discovery of the gonococcus.

The details of the permanganate irrigation methods showed two essential features: irrigation with large quantities of the solution, and the early extension of the medication to the deep urethra generally on the third day of the treatment. This fluid should pass along the entire urethra into the bladder without a catheter, and without injurious hydrostatic pressure in the anterior urethra, by inducing the patient to voluntarily relax the cut off muscle, which alone opposes the entrance of the fluid into the deep urethra. The patient can learn to do this by taking a full breath, and at the same time making an effort to urinate; in this way the irrigating fluid which fills the urethra passes readily into the bladder, and the hydrostatic pressure should be kept very slight. These injections should be made by the physician, which will require the patient making two visits daily for the first four days, receiving at each visit an irrigation of the anterior urethra, and on the third and fourth day an irrigation of the deep urethra. This solution should be very weak at first, consisting only of one part of the permanganate to four thousand of water, the strength being increased as the treatment progresses.

On and after the fifth day the patient should receive one complete irrigation daily until fourteen are given, a quart at each irrigation—should gonococci still persist or the discharge continue the injections may be continued. An ordinary fountain syringe may be used for these injections, but especial appliances are better. Valentine has devised an apparatus which all equipment stores keep. As done by the physician the patient should bare his body from hip to knees, attach a rubber apron with a hole in the centre for the penis to pass through, and then sliding into a semi-recumbent position, hold a basin under the penis while the physician cleans first the glans penis, sulcus and foreskin before introducing the nozzle into the meatus. Immediate relief of pain follows, the scalding or urination disappears, and a rapid cure follows. Goldberg states that sixty per cent. of his cases were cured in ten days, thirty per cent. in fourteen days, five per cent. in longer periods, while five per cent. were failures. Motz, who irrigates the entire urethra from the first day reports a greater percentages of cure. In the hands of three skilful venereal experts, Taylor, of New York; Belfield, of Chicago, and Christain, of Philadelphia, the results were less favorable, and they have abandoned this treatment for the use of silver. However, the irrigation method in itself is an advance, the use of large quantities of a solution and the flushing of the entire urethra without a catheter. Belfield has recommended that salt of silver, called protargol, while Christain lauds argyrol, a newer salt of silver. The use of the nitrate of silver itself has certain disadvantages, for again solutions strong enough to destroy the gonococci also damaged the urethral mucous membrane. Nevertheless the results were so much better than that from any other drug that the search began for some silver compound which would have all the virtues of silver without any irritating proporties. Pedersen in an address before the American Therapeutic Society (*Medical News*, October 10, 1903), stated as follows:

"The most important recent advance in the treatment of gonorrhea was the introduction of argyrol, which is widely accepted as the best acute-gonorrheal drug that we have to-day. The reports and comments of many observers go to show that its efficacy is greater than any of its predecessors, and in solutions as high as twenty per cent. it is unirritating to the urethral mucous membrane, even a two to five per cent. solution used as a hand injection twice daily and retained in the urethra five minutes, shortens the acute stage so positively that it amounts to an abortion of the disease in cases seen in the very incipiency of the invasion."

Christain in the *Medical Record* for September 27, 1902, gives four reasons why he considers this drug the best for gonorrheal conditions.

1. It is absolutely free from any irritating properties; solutions as high as twenty per cent. causing no discomfort.

2. The gonococci on and beneath the urethral mucous membrane are rapidly destroyed.

3. The amount of urethral discharge is in a majority of cases at once lessened in a marked degree.

4. The actual duration of the disease is shorter than is obtained by the use of any other silver salt.

Since this report Christain states that he has treated two thousand cases of gonorrhea with argyrol, and has not changed his opinion. (*Medical Bulletin*, December, 1903.)

Of course argyrol cannot be looked on as a cure-all; it is not all that is necessary in gonorrhea. Not only are the gonococci to be dealt with, but the damage due to the destructive action of the micro organism as well. There always remains a condition of catarrhal urethritis which requires an especial line of treatment. If a case of gonorrhea is seen early in the inflammatory stage when ardor urinæ and chordee are annoying, a prescription should be given, of some soothing antiseptic diuretics such as salol, bromide of sodium and bicarbonate of potassium in powder form every two hours. At the same time a five per cent. solution of argyrol can be used by the patient as a hand injection three or four times daily, the solution being held in the urethra for ten minutes. It is also well to wash out first the anterior urethra with a warm normal salt solution. Carry on this treatment through the second and third week. When the subjective symptoms subside it is well to supplement the local treatment with the internal use of copaiba and sandal-wood oil. In the third week when the case is going on to recovery, great care is needed. Here we need more than a gonococcidal agent;

mild astringent lotions are needed to repair the integrity of the damaged mucous membranes. Here Christain advises the use of argyrol at night and morning with the use during the day of such a solution as this:

℞

Zinci sulphatis.....10 gr.
Bismuth, subcarb.....ʒij
Liq. hydrastis (colorless).....ʒss
Aq. destil. q. s. ad.....fʒij
Sig. Inject 2 drachms three or four times daily.

Belfield recommends at this stage a solution of berberine muriate, ten grains to a pint of water.

In the fifth week, when nothing remains but the morning "drop," and the urine is clear, use the argyrol solution at night and once or twice a day such a prescription as cupric sulphate or zinc chloride, four grains to four ounces of destilled water.

I will now report a typical case to show the practical application of this method of treatment. This man, thirty years of age, came to me complaining of a discharge at the mouth of the penis. He had had a suspicious connection five days before, and this discharge was a day old. This is a usual period of incubation, from three to nine days being the ordinary limits. Cases have been reported where the discharge has appeared in a few hours, and some as late as the fifteenth day, but these are unusual. Take charge completely of such a patient's life. His mind must be freed from lascivious thoughts, and sexual indulgence prohibited. He must abstain from alcoholic liquors, take as much rest as possible, and no severe exercise. We must make him as comfortable as possible, and prevent any complications, such as posterior urethritis, epididymitis, orchitis and cystitis—gonorrhea usually begins at the fossa navicularis, and extends backwards. Hence dilute the urine and cause frequent micturition by making him drink as much water as possible, also giving him the elixir buchu with acetate of potash. In this case I used for injections at first a saturated solution of boric acid, then argyrol.

A suspensory bandage should be worn when the inflammation reaches the neighborhood of the compressor urethræ muscle. This is generally about the third week. As long as the secretion is profuse the pus escapes at the meatus; if the secretion is scanty, it may escape detection. In these cases have the patient urinate in two bottles; pass the first part into one bottle, the rest into the other. In this case the first urine was cloudy, the second clear. It shows that the inflammation is confined to the anterior urethra, and not spread to the posterior.

The Differential Diagnosis Between Cystitis and Pyelitis.—Rosenfeld (*Centralblatt fuer innere Medizin*, No. 8) differentiates by three methods: (1) By the reaction of the urine; in uncomplicated pyelitis it is acid; in cystitis it is alkaline in all but tubercular cases. (2) On the shape of the white and the red blood cells, the former are round if from the bladder, but distorted if from the pelvis of the kidney. The same condition is evidenced by the red cells. They are also colorless if from the kidney; the epithelia of the kidney are round and have a glistening nucleus. (3) The relation between the amount of albumin and the amount of pus is an important diagnostic point. In cystitis, although the quantity of pus be great the albumin percentage is low, whilst in pyelitis the conditions are reversed.

PECULIARITIES OF CHILDHOOD IN DISEASES.

BY M. M'CRORY, M.D.

THE recent graduate has not been thrown upon the cold world very long before he realizes that there is much to learn about the practice of medicine outside of his textbooks and typical hospital cases. He sees his cases in their own homes, surrounded by their individual circumstances, often hidden from his view. How often has the light been thrown upon a puzzling case by some clear headed outsider who sees much in the family life that may escape the physician, or be concealed, willingly or unconsciously. Among the hardest of his patients to treat are the children, for many reasons. In the first place, pediatrias has been compared to pediatrics in that the patient is unable to locate his trouble or explain his symptoms. Again an anxious parent is generally thrown in to complicate the situation while in the little patient himself the disease is apt to vary in its symptoms. For this reason the treatment of children is difficult and exasperating, but it is vital to a physician's success. Success with the children means much to the future of any practitioner, no matter where he be.

Remember in the first place that much or all of the patient's illness may be due to a parent's lack of judgment or carelessness. I have little patients whom I dread to see ill because I realize their mothers, to use plain English, have no sense. I remember distinctly a recent case; a child fell ill with a simple attack of bronchitis while on a visit. I found the child each day growing paler and weaker, and for no reason until another member of the family told me that the anxious mother was up all night with the child talking to it, keeping the gas lit, and in every way unintentionally depriving the child of much needed rest. Here I was forced to make the mother pledge to keep the light unlit, and stay quietly in bed, and in two days the child, which had dragged along wearily for a week, was well.

Children are animals, and we must not try to make adults of them. Many fond parents or indiscreet grandparents imagine that children like the same pleasures that they do. How often are children dragged to the theatre who should stay at home. I have found every child under seven or eight as a rule really hates the theatre, and in my practice I try to keep them out of the places altogether. Seventeen to twenty is young enough to begin theatre-going. A good slide on a snowy hill, a brisk skate on a pond, or a fine game of hockey is far more enjoyed by the normal child.

If we physicians would only impress on our patients that during the first eight or ten years of child-life, the amount of mental cultivation which a child's brain is capable of receiving with permanent advantage is much less than is commonly believed; for no greater physiological mistake is possible than that of attempting any considerable degree of such culture until the sufficient development of the physical stamina and moral faculties. The mind is as much a part of the body as the hand, and before either can function properly, its vital force must be fostered and maintained by nutrition and developed by physical exercise.

In connection with the physical management of childhood, let us say a few words on the abuse of alcoholic stimulants; the evils resulting from the abuse of alcohol were never so prevalent as at present, and are traceable in the diseases of youth as well as in those of adults.

The results of this acquired or inherited alcoholism are brought under clinical observation in the form of cerebral, gastric, and hepatic disorders, and especially cirrhosis of the liver, as well as the protean forms of cerebro-spinal disease, and the various neuroses so frequently noticed in hospitals for children. In the majority of these cases of juvenile alcoholism this tendency appears inherited and most marked in those whose mothers were inebriates—intemperance in women also bearing in other ways on the diseases treated in hospitals for children, where its effects are strikingly evinced by the moral and physical deterioration of the offspring of the drunken, and by their special predisposition to strumous, tubercular, and other constitutional tints. Under no circumstances should alcoholic stimulants be given to children, save in defined doses of other remedial agents—experience in hospital and private practice, at home and abroad, having amply confirmed the view that it is physiologically wrong, as well as morally unjustifiable to allow a healthy child to be given alcohol in any form.

Madden says that the respective claims of physical and mental training, and the evils arising from the neglect or abuse of either, are obviously questions of the highest medical as well as social interest. This neglect now shows itself in two different aspects; on the one hand, the children of the English poor are compulsorily subjected at an absurdly early age to a forcing and injurious system of mental cultivation; while, on the other hand, uncommonly overtrained at the expense of the mental faculties. Of these errors the former is the most important, and to its operation is, he believes, largely ascribable the apparent diminution of physical stamina observable in too many of the youth of the present day as compared with the physically more robust, if intellectually less cultured, generation of the pre-educational period. At the present time a large part of the first ten years of life, which should be primarily devoted to physical and moral training, is given up to the development of the mental powers; the child, when a mere infant, being compelled to attend some school, where the immature brain is forced into abnormal and disastrous activity. On its return home, jaded in mind and body, to prepare for the next day's task, such a child is necessarily unfit for the enjoyment of the physical exercise which is essential for its bodily development and health, or for the still more important elementary training of the affections and moral faculties.

It is always interesting for a physician to report on his own case; for example, Hauseman has reported a careful record of phenomena attending the appearance of diphtheria in his own person; a severe attack of diphtheritic angina began, a false membrane covering both tonsils, the velum palati, the posterior wall of the pharynx to the entrance of the larynx, the œsophagus, and the nasal cavities. His temperature reached 104° F., and there was much albumin in the urine; the disease lasting four weeks. The first symptoms of paralysis were felt upon the right pillar of the velum on the eighteenth day. For the next few days there was much disturbance of sensibility. Then came a feeling of formication in the tongue which gradually increased, then inability to move the tongue freely, and finally total anæthesia and paresis of the organ. Nervous troubles in other parts developed in a similar manner. Paraesthesia was absent only upon the velum and the top of the larynx. Following the paralysis of the tongue there was paralysis of the buccal mucous membrane, the lips, the cheeks, and then the whole figure. There was paresis of the mimicking muscles and the masticating muscles of the face; the senses of smell and taste lost their acuteness, but sight and hearing were entirely unaffected. In the fifth week the second and third branches of the trigenial were attacked, the facial, the glosso-pharyngeal and the hypo-glossal, then the vagus and the spinal accessory in the branches supplied to the larynx and œsophagus. The vagus of the heart and intestine was not involved, though there was at times acceleration of the pulse, with partial syncope. In the eighth week the upper extremities, the trunk and the lower extremities were invaded, with the same succession of symptoms; no severe pain was felt, but every day there were general malaise, intellectual depression, insomnia, and a sensation of heat, but no rise of temperature. Paralysis of the external oculo-motorius caused diplopia and crossed images, involvement of the common oculo-motorius caused pupillary paresis and disappearance of a pre-existing myopia due to fault of accommodation, as to the hands, there was athetosis, but not if the will were brought into action to prevent it. The paralytic phenomena were at their maximum in the middle of the third month, at which time, however, there had been an improvement in the condition of the pharynx and face. Convalescence was not established until the fourth month. The only treatment consisted in a tonic regimen. He found massage was painful and hydrotherapy inefficacious. From this auto-observation Hauseman concluded that two paths are to be distinguished along which the diphtheritic virus is propagated; one includes, by metastasis, the lympathic and blood streams by which the disease reaches the heart, kidneys and joints, the other is the track of the nerves, the virus progressing, by contiguity, from one nerve to another.

From Canada Howard recorded two cases of cirrhosis of the liver in childhood; Germany presents eighteen; England, forty-four; France, fifteen; the United States, eight; Ireland, four; and India, one; undoubtedly the disease is very rare. Flint has remarked upon its exceeding rarity in the United States. Osler has also mentioned its rareness in childhood.

Edwards presented some years ago a study of cirrhosis with a report of one case and a tabulated resume of the literature. The slight effect that alcohol has in these cases is illustrated by the fact that its habitual use is mentioned only eleven times, its absence being noted in fifty cases, and no mention being made of it at all in thirty-three instances. In six times it is recorded as probable. While the infectious fevers play a more important rôle in the etiology of the disease, the hepatic derangement of fevers may, and often does, persist after they have subsided, and thus is said, independent of syphilitic contamination or alcoholic abuse, to produce chronic interstitial hepatitis.

Hebrard has recorded one case of interstitial hepatitis following measles, with microscopic studies presenting infiltration by newly-formed connective tissue, distention of veins and arteries, and much fatty degeneration; and Klein has examined eight examples of acute interstitial hepatitis in scarlatinous cases. The case reported by Edwards would seem to be an example of cirrhosis following the infectious fevers, as the child is not syphilitic and is a non-alcoholic, but has suffered most severely from both measles and scarlatina. Howard has collated six cases in which cirrhosis seemed to

be part of a general fibroid change, and one case in which Gull and Sutton's oft-described arterio-capillary change could be considered as a causative agent.

Tuberculosis may cause an hepatic cirrhosis, while lately faulty digestion and the alkaloidal products of albuminous decomposition—the ptomaines—have been regarded as a possible cause of interstitial hepatitis, although the matter is as yet undecided. Regarding the disease as it occurs in childhood, it may be either atrophic or hypertrophic, not unusually the so-called mixed cirrhosis is met with; some observers regard the latter as rather the usual form in childhood. The age of greatest frequency is from nine to twelve years; males are more affected than females, in the proportion of almost two to one. Symptomatology differs but little from the adult. The symptoms at first are apt to be confounded with simple congestion. Digestive troubles exist, abdominal pain, slightly augmented by pressure, alternating diarrhœa with constipation, increase in the size of the liver, slight ascites, dilatation of the subcutaneous abdominal veins, and slight jaundice or a subicteroid tint of the face. Stigmata, composed of collections of dilated minute venules, may be observed on the face; their presence should suggest an examination of the liver, with special reference to the probable existence of cirrhosis. A large proportion of the cases of infantile cirrhosis present irregularities in the temperature-curves. The case that Edwards reported presented a temperature which, within a month, fluctuated between 100° and 97 3-5° F. It was quite as apt to be subnormal as elevated. The prognosis and treatment are as in the adult. Lately cases have been reported that appear to show that the prognosis is not as hopelessly fatal as we have formerly considered it.

Teratology is a department of pathological anatomy, or more strictly speaking, of abnormal embryology, which had hitherto received less attention in this country than its real importance justly entitles it to; there have been few American investigators, students, or writers on the subject up to the present time, the entire American literature of the subject, embracing every pamphlet, essay, and journal article that in any direct way relates to it, can readily be held between the thumb and fingers of the right hand. The French, Germans, Italians, and several other nationalities have bestowed a great deal of attention on the embryology, classification, and anatomical description of human and animal monstrosities, and their languages are quite rich in valuable literature on this subject.

The writer has long been impressed with the necessity of a concise and comprehensive handbook of teratology, which should teach the elements of the science, including the embryogenesis of all forms of abnormal development, the classification, nomenclature, and description of typical cases, illustrated with figures representing the external configuration and internal structure of representative cases, both human and comparative.

In an ideal treatise of this character, ample if not exhaustive references to the literature of the subject should constitute a cardinal feature. In order to do this without needless repetition it would require a complete alphabetical and numbered list of authors on the subject, which could be conveniently referred to in the text by the numbers, thus bringing the whole materials of teratology to the practical knowledge of the student. A work such as we have indicated would also require a glossary of all the numerous terms that have been employed by teratological writers, past and present, including the etymology, synonymy, definition, and, as far as possible, the authorship of every term that strictly pertains to teratology. This scheme may be regarded as impracticable on account of the enormous amount of labor involved; this, however, is not as great as at first sight might appear. All of this work has never been done and published in any single treatise, in any language; and so far as a glossary is concerned, that it has ever been attempted by any writer as yet.

Stricture of the œsophagus is often forced unpleasantly on the attention of the practitioner by some accident on the part of a child such as the swallowing of concentrated lye, or it may be due to congenital causes —more common in males we find that the strictures resulting from swallowing caustic fluids are found usually at the upper part of the tube, just back of the cricoid cartilage. The seat next most frequently involved is the lower portion of the tube, near the cardiac orifice of the stomach. Occasionally multiple strictures are encountered. When a stricture has existed for some time, that part of the œsophagus above is apt to become dilated on account of the detention of food and fatty degeneration of the muscular walls; and in very close strictures, the portion beneath becomes atrophied. The disease is usually traumatic when seen in persons in early life, and malignant when found in those past fifty years of age. The traumatic cases almost invariably result from the swallowing of hot or acid substances.

Occasionally there have been reported cases where the disease apparently arises spontaneously, although it seems probable that the number of these cases is overestimated, on account of the physician having forgotten or overlooked the real cause. Syphilis, tuberculosis, and more rarely rheumatism may act as causal factors. In the cases of malignant origin, dysphonia and dysphagia are apt to be present at some time in the disease. Occasionally paralysis of the vocal cords, due to pressure on the recurrent laryngeal nerve, is seen. In the diagnosis the use of the laryngoscope is important, as it enables the physician to exclude diseases of the pharynx. Auscultation during the deglutition of fluids is also useful—gurgling sound may be heard at the seat of the stricture. Occasionally the stricture may be detected by palpitation over the œsophagus, but the most satisfactory evidence is furnished by passing an œsophageal bougie, but care must be exercised, however, in the use of this instrument, in cases in which there is a possibility of malignant disease, or of ulceration of the œsophagus. Exclude tumors and tuberculous laryngitis, the former by a careful examination, the latter by the constitutional symptoms, pulmonary signs, and laryngoscopic examination. The pain during deglutition is very much greater in tuberculous laryngitis; it must be remembered in the case of spasmodic strictures that there are intervals when all of the symptoms of the trouble may be wanting. The malignant form of the disease is usually fatal in from eight to eighteen months. The non-malignant strictures frequently pursue a very slow course, but in the cases due to traumatisms a cure is usually impossible, and if the case be one in which there is marked contraction, followed by dilatation above the seat of the trouble, death may result from ulceration, abscess, or gangrene, as well as from marasms. In those cases in which the constriction is very moderate, the spasmodic cases, and

those due to catarrhal inflammation, the prognosis is favorable. An important part of the treatment of any form of this disease is the administration of sufficient and suitable nourishment, and when this cannot pass the stricture nutritive enemata should be employed. In the specific and rheumatic cases the iodides are to be given; in those of malignant origin arsenic may be prescribed for its supposed specific effects, and opium in sufficient quantities to relieve the pain; in all other cases by far the most useful is mechanical dilatation. This may be employed occasionally in malignant cases with benefit. For this purpose graduated œsophageal bougies are used, either alone or subsequent to internal or external œsophagotomy.

Internal œsophagotomy is generally considered a hazardous operation, and has not found great favor with surgeons. External œsophagotomy is very rarely called for, only being useful when the stricture occupies a portion of the œsophagus easy of access. Experience has shown that in the malignant cases the average duration of life is only one month after external œsophagotomy or gastrotomy. In using the bougies, a medium size should first be selected to locate the stricture, after which smaller sizes are to be tried until one which passes through the stricture is found, when larger sizes can be employed. Dilatation should be repeated after three or four days, beginning with the next to the largest bougie used at the last sitting, and following by two larger sizes. As the stricture yields to the treatment the sittings may become less and less frequent. Electrolysis has also been employed in the treatment of this affection; but it is considered by many as dangerous on account of the proximity of the pneumogastric nerve.

SYPHILIS IN ITS RELATION TO MARRIAGE.

BY M. SHELLENBERG, M.D.

IN what circumstances does a patient affected with syphilis cease to be dangerous in marriage? This grave question of the marriage of syphilitics has been confronted, discussed and debated for many years, but nowhere exists a veritable programme formulated in extenso, or even outlined, upon this matter, excepting possibly in the work of Fournier, who formulates five conditions as follows:

1. Absence of existing specific accidents. 2. Advanced age of the diathesis. 3. A certain period of absolute immunity consecutive to the last specific manifestations. 4. Non-threatening character of the disease. 5. Sufficient specific treatment.

In the first condition, which is the absence of existing specific accidents, it is elementary, of course, for all the world, for the laity as well as for physicians, that the first obligation for a syphilitic candidate for marriage to fulfill is, that he present no syphilitic accidents at the time of his marriage; for the existence of the least syphilitic accident is evidence of the disease, active and dangerous. It matters little whether this accident be of a transmissible nature or not, for: 1. If it be of a transmissible nature, the contraindication of marriage is as direct and absolute as possible; and if it be not of a contagious nature, it none the less reveals a permanent diathesis, with its dangers and consequences. All the evidence is too direct for contradiction. And one might be astonished that a proposition like this, the absence of accidents at the epoch of marriage, should even need to be suggested. In fact, one would scarcely think that men could be found so destitute of moral sense as to dare become husbands with the existing accidents of syphilis present on their persons.

Among this class, especially in Europe, there are men understanding perfectly both what they have and what they may transmit; who take an exact account of the situation, and, while appreciating all its dangers, nevertheless, brave these dangers, because they have a dominant interest, such as a dowry to secure, or a situation to make, a "position" to gain. Fortunately American men as a class are not so depraved.

In the second condition of Fournier, which is the advanced age of the diathesis, we reach one of the most important and essential conditions of our subject; indeed, it may be stated as an axiom: The more recent the syphilis of the husband, the more numerous, the more serious will be the dangers which he carries into marriage; hence the converse is true. The older the patient's syphilis, the more shall we be authorized to tolerate his marriage. It may be asserted that a "young syphilis" is especially dangerous, in so far as contagiousness is concerned. It is a common belief that the disseminated, scattered manifestations of the diathesis, which, under the name of mucous patches, or, better, of erosive, papulo-erosive, papulo-ulcerative syphilides, etc., so frequently affect the various mucous surfaces and the skin, that these lesions especially belong, chronologically, to the earlier stage of the disease, to what is termed the secondary period. It is in the first months, in the first two or three years of the infection, that they are observed almost exclusively; the contagiousness of such accidents needs no demonstration to-day. Accidents of this order constitute the principal source which feeds and propagates syphilis. Every physician knows, that, in the first two or three years of the diathesis, the morbid manifestations are more particularly apt to multiply, to recur, and that with a persistence sometimes desperate. Let us cite, for example, the buccal mucous patches which, among smokers more particularly, are produced and reproduced with many repetitions in the course of the first months or the first years of the disease. In addition, at this same period of the diathesis, there are two centers of predilection which influence the morbid determinations, viz., the mouth and the genital organs.

Here comes a curious fact in general study; secondary syphilis is particularly dangerous, as regards contagion, from the benignity of its accidents, for often the lesions upon the mucous membranes, in the mouth or on the penis, notably, consist only in very superficial erosions, slight in extent, almost simply desquamative. These lesions may easily pass unperceived, even by careful persons, attentive to their health; they may be confounded with common, ordinary, insignificant erosions, on the penis, they are frequently taken for simple excoriations, for, herpetic other inflammatory abrasions, while in the mouth, they pass not uncommonly for aphthae, fissures, etc., "local irritations from the cigar or cigarette," etc. This constitutes the danger, for such slight, benign accidents do not seem to necessitate continence, and they thus become the origin of subsequent contagion.

In an enormous majority of cases husbands that communicate syphilis to their wives are those who have entered into marriage with a syphilis still young—that is to say, with a syphilis dating back several months, one year, two years, more rarely three or four years. When

a man marries with a recent syphilis still active, the infection of his wife is a certainty. Contrary, much more rare are the cases where the infection of the wife is produced when the husband's syphilis is old, dating back six, eight, ten years or more. Syphilitic contagion in marriage is much the more to be feared for the wife in proportion as more recent is the date of the syphilis in the husband.

Again in the hereditary influence, advanced age in the paternal syphilis is a condition proportionally favorable. It is an ancient fact recorded by various authors, that the syphilitic influence of the father upon the children undergoes a progressive decrease in proportion as the diathesis becomes old. Thus, for my part, in those cases where I have observed the syphilis pass directly from the father to the child without contamination of the mother, I have remarked that the paternal affection was always of recent date, never exceeding at the maximum, three or four years. Another proof is furnished by those cases of successive abortions which may result from the syphilis of the husband; a healthy woman, except from syphilis, begins by having several miscarriages; then the first improvement being realized under the sole influence of time, the husband still continuing to neglect treatment this same woman does not abort any more, she only is confined before term, and always of a dead infant; then comes a second stage of improvement, she is delivered at term of an infant dead or destined to a speedy death; still later, at length she brings forth one or more living children.

In this connection Hutchinson cites this case: "A physician contracts syphilis and treats himself for about six months. Believing himself cured, and free from all apprehension, he marries three or four years later; his wife remains healthy and becomes enceinte eleven times. Look at the results furnished by these different pregnancies, and mark the progressive attentuation which the diathesis undergoes under the sole influence of time:

First pregnancy: child still-born. Second pregnancy: child still-born. Third pregnancy: child born alive, but syphilitic and dying, with the characteristic symptoms of hereditary syphilis. Fourth pregnancy: child born alive, but syphilitic and dying, likewise from syphilis. On the contrary, the last seven pregnancies furnish children who, although syphilitic, resist the disease and all remain living. And, moreover, could one call in doubt the attentuating and corrective influence of time upon paternal heredity when this same influence shows itself in so positive and evident a manner upon maternal heredity, or, collectively, upon mixed heredity derived from the two parents? Is not this a fact absolutely demonstrated, is not this a veritable pathological law, the gradual diminution, then the final extinction of the syphilitic reaction of the parents upon the children?"

In connection with this question, is the interesting problem of the ability to abort the course of syphilis. Hutchinson has published his matured opinions respecting the abortive treatment of syphilis; in using the term "abortive," Mr. Hutchinson means to express a method which arrests the development of specific manifestations —which suppresses the secondary phenomena. It consists in the administration of mercury from the earliest expression of a specific character in the sore. He prefers hydrargyrum cum creta, which he gives in grain doses, three, four, five, or six times a day, according to the conditions present. He rather intimates that any "suspicious sore"—any sore having an appearance suggestive of specific infection, yet not having fully developed specific characteristics—should be treated by the abortive plan, with discretion. At the earliest appearance of specific attributes in the sore, Mr. Hutchinson begins the mercurial treatment and carries it steadily on, carefully avoiding the production of salivation. He holds that mercury is the "antidote" to the specific virus, that it destroys the microbe, to the existence of which he fully commits himself; but recognizing the persistent viability of the parasite, he persists in the administration of the antidote through many months. The practical result is, that the secondary manifestations are suppressed, that the patient is spared the sore mouth, the eruptions, the baldness, etc., of that period, and that no ill effects are produced by the mercury, which, if the dose were small, and not too frequently administered, could be used during the whole period given up to the secondary stage under other management. In the discussion that followed the reading of Mr. Hutchinson's paper, various opinions were expressed, but it is evident that the early and persistent use of mercury is the most popular treatment. Mr. Bloxam thought that a six months' treatment by mercury is not long enough, and that the subcutaneous mode of using the remedy is the best. Mr. Malcolm Morris waits until the secondary manifestations are pronounced before beginning the use of mercury.

An advanced age of the diathesis is a condition certainly favorable, and constitutes an additional guarantee —a guarantee not positive and absolute, be it well understood, but at least relative; the advanced age of the diathesis in a certain measure allows a better appreciation of the "quality" of this diathesis, its degree of intensity, its general prognosis. Not, assuredly that in the case of syphilis the past is always, as it has been termed, "the mirror of the future." Not that a syphilis primarily benign may not result in serious or mortal accidents at a remote period; but it is always the case that, at a period more or less advanced, certain accidents, certain menacing, malignant forms of the disease, are no longer to be feared. The stage comprised between the *debut* of the disease and the present time may have been employed advantageously in a long and salutary treatment, which confers the best and most substantial of guarantees in all such cases. A syphilitic subject has neither the privilege nor the right to aspire to marriage unless his disease dates back a certain time. This I claim, and lay down as a principle, it being a conviction, now based upon a very large number of observations in actual practice.

Of course, we must realize that the age of a syphilis is not the sole fact which one may determine the admissibility or non-admissibility to marriage; it includes other factors, involves other important and paramount conditions, such as the nature of the anterior specific accidents, the "quality" of the diathesis, the intervention of a sufficient treatment, the influence exercised by such treatment, etc. The age of the disease can never be taken as a basis to solve this problem. Taking only the fact of the age, Fournier does not think that a syphilitis subject should be permitted to think of marriage until after a minimum period of three or four years devoted to a most careful and rigid treatment.

Therefore, three or four years, is, in his opinion, the minimum time in which the diathesis may be sufficiently weakened under the double influence of time and treatment; in order that the patient, restored to ordinary conditions, may promptly aspire to become a head of fam-

ily; it is not too much. The requirements are not excessive; a longer time would be better, for, with syphilis, it is always advantageous to wait, to defer when there are such interests at stake as those of an entire family. Short of the minimum time, there is everything to fear, and the dangers of syphilis in the husband are revealed by catastrophes which, if not inevitable and constant, are at least frequent and habitual; beyond that period the dangers from the syphilis of the husband decrease and disappear, if not in a manner absolutely certain, at least very frequently, so frequently, at any rate, as to warrant us in allowing marriage; during this period the curative influence of a systematic, methodic, active and prolonged treatment should be tried, in addition to the corrective influence of years.

We have all seen the saddest, the most unfortunate consequences succeed premature unions of this kind; yet after three or four years usefully devoted to a depurative medication, I believe that I am authorized by experience to tolerate marriage, unless there be some particular contraindication noticed in some other portion of the programme; this is because I have seen numbers of syphilitic subjects marry in these conditions without becoming noxious to their wives or their offspring.

I use the term "tolerating marriage," for, in fact, we should tolerate it rather than counsel it. I tolerate because I consider the term of three or four years as strictly sufficient to protect the various interests. But I will frankly say that a longer delay would be much more satisfactory, as affording more effective guarantees; when syphilis, besides having been well treated, dates back six, eight or ten years, we can feel much more at ease in giving him a clean bill of health. When consulted upon the propriety of marriage by a patient whose syphilis (although regularly treated), dates back only three or four years, begin by counseling him to wait, to defer his project of union, and insist upon new treatment, with the view of increasing and perfecting his chances of security; if, nevertheless, the patient urges serious and paramount reasons for an immediate marriage, and if in addition, he satisfies all the other requirements of my programme, I do not think that we have the right to thwart his projects.

Studying the third condition, as advanced by Fournier, we find that the stage of immunity must be sufficiently prolonged after the last specific manifestations.

It is indispensable in this matter that a period more or less prolonged between the last manifestations presented by the disease and the date fixed for marriage should elapse without specific accidents; before a patient has the right to think of marriage, it is necessary that he remain exempt from any diathetic manifestation during a time sufficiently prolonged, and that his lapse of time, the period of immunity, pass without any specific symptom, without any syphilitic outbreak. The period of immunity contains a necessary guarantee for admissibility to marriage for many reasons: In the first place, it has a significance; for it proves that the diathesis has passed its acute stage, especially formidable period where the syphilitic outbursts succeed each other at short intervals, sometimes without remission, and which are no less dangerous from their number than from their contagious quality. Again the time, more or less lengthened, which passes without accidents, permits us to judge of the degree of amelioration; it shows the non-activity of the disease. Of course, it is possible that the absence of accidents during a certain period may be only the truce granted by the disease, which, after a certain time, will reappear; but it is also possible, in cases where treatment has been vigorously employed, that it is the commencement of a positive cure.

A prolonged immunity is a good sign—corresponding to an arrest of the disease, which attests its decrease and its decline; if this favorable condition be strengthened by the additional guarantee of a sufficient medication, there is cause to hope that the disease is being definitely cured. For my part, following Fournier in his belief, I never allow one of my patients to marry soon after any specific accident whatever, no matter how trifling it may be; because the occurrence of any syphilitic accident does not prove only that the diathesis continues to exist, but that it exists in full activity; and, again, because, in such cases, it is impossible to predict what may follow. Are not other morbid determinations about to arise in the near future, or is a calm about to ensue? Time alone can decide; to wait is the rigorous rule in such a situation. If a patient comes to me, saying, "it now is two years, four years, six years, ten years since I have seen anything," this long silence of the disease puts one quite at ease. I perceive that I have to do with a diathesis quieting down which will not reproduce those secondary phases so dangerous as regards contagion and heredity.

The fourth condition laid down is the non-menacing character of the diathesis. Evidently there is syphilis and syphilis, as has been so often said and repeated; for unquestionably there is a benign syphilis and a grave syphilis. There are light cases of syphilis, which, however little they may be subjected to treatment, limit their manifestations to a small number of external, superficial, and unimportant symptoms; while there are, also, grave cases of syphilis, which, although systematically and energetically treated, none the less determine serious and important manifestations. The character of the syphilis with which a patient has been affected is of interest in deciding this special question; it has, in fact, a deep significance in this matter, essential to appreciate, and to which there is reason to attach great importance.

Suppose the case of a patient who comes to ask our advice upon the propriety of marriage, if the syphilis with which he has been affected has been only average or light, if it has been limited to a small number of crops, if the accidents composing these crops have been superficial and benign, if the diathesis has shown itself amenable to treatment and readily improves under treatment, we have many excellent conditions which ought to influence our judgment favorably. The past seems here a guarantee of the future, and may seem to compel the physician's acquiescence in the marriage. Indeed, this is only justice, for, according to experience, the prognostications of good augury deduced from antecedents so favorable are almost always confirmed by subsequent developments, especially when the patient has a long and careful treatment behind him.

Caution here is necessary, however, for while certainly an original benignity of a syphilis constitutes a favorable condition for marriage, it is no more than this; it does not, alone, supply the place of the other requirements of the complex standard which we are maintaining. To trust to this alone, in permitting

marriage, is a grave error which would lead to the most unhappy consequences; yet, in practice, this imprudence is too frequently committed. No matter how benign may have been a syphilis in its earlier stages, one is not authorized by this fact alone to permit marriage, for in spite of this benignity, it is no less necessary that the patient fully satisfy other general conditions. On the other hand, experience teaches us that cases of syphilis, originally benign, may reveal themselves more or less tardily, by severe manifestations, if they have not been subjected to an active and prolonged treatment. And it has been often seen that a syphilis of this kind negligently treated, on account of its apparent benignity, may become later singularly dangerous in marriage. Occasionally these same cases of syphilis inoffensive in appearance at first, nevertheless present a dark outlook for the future, and this dark outlook rates to the personal risks of the husband. It is now thoroughly proved that the initial benignity of a syphilis by no means constitutes an absolute guarantee for the future. Such a syphilis, although beginning well, is no less liable on that account to end wretchedly. At any rate, from the foregoing facts we derive this definite and important conclusion, viz.: that the initial benignity of a syphilis does not constitute a pledge of security for marriage, if it be not joined with additional guarantees, especially that of a sufficient treatment.

We come now to the study of syphilis of a directly opposite character, the chances of a bad syphilis in marriage. This severe form of syphilis comprises all those cases which, from various causes, are more liable than others to become dangerous in marriage. They are numerous and of various orders. I can not enumerate them all, for one can not foresee them all, and the particular cases are multiple and infinitely variable. But I will cite here the principal ones, those which it is essentially important to recognize, in order to fight them. In the first place, wretched for marriage are certain cases of syphilis, which, without being severe, present an unusual tendency to continual reproduction, a ready, repeated, and almost incessant multiplication of various accidents of the secondary stage, particularly erosions of the mucous surfaces; to these accidents certain subjects remain exposed during many consecutive years, sometimes even in spite of the best regular treatment. These lesions are frequently in the mouth, affecting more rarely the genital mucous surface; always superficial, limited and benign; they are cured with the utmost facility under the influence of cauterization, aided by certain local attention, but they are cured only to recur. Intrinsically, they are of no importance; but they are none the less dangerous as regards contagion. Equally poor are the numerous varieties of syphilis, which, for various reasons, one may characterize as grave: grave it may be on account of the multiplicity and intensity of their accidents, such as precocious, malignant syphilis; it may be on account of the nature of their manifestations, such as ulcerations, deep, extensive, phagedenic, and menacing; it may be on account of their precocious tendency to the visceral form, or, more generally, to morbid determinations which occur only as a rule in advanced age of the diathesis; it may be on account of the reaction which they exert upon the constitution, the nutrition, and the health; it may be on account of their character of obstinacy to treatment; it may be, finally, on account of such or such other peculiarities, infinitely variable, but all presenting this common quality, all unequivocally testifying to an unusual intensity of the disease.

Just as wretched are those cases of syphilis which select some important organ, such as the eye, the brain, or the spinal cord. The cases of syphilis with ocular localizations, for examples, are very often remarkable for their obstinacy, for their tenacity, for their relapses after cure, and altogether by the serious functional troubles which they leave behind. Numbers of times have they resulted in complete blindness, despite the most energetic treatment and the efforts of the most skillful ophthalmologists. Appreciate as the intrinsic prognosis of each particular case, at least as exact, as precise as possible,—of the quality of the syphilis which affects the patient, who comes to seek our advice and submit his destinies to our direction. Inform yourself as thoroughly as possible upon his antecedents and upon the nature of the accidents which he has presented. It is your business to prepare from a careful and minute inventory "the pathological balance-sheet" of his patient, to judge of the quality of the syphilis under observation; then, this analysis made, to decide finally whether, from a medical point of view, there is reason to consider said diathesis dangerous for marriage or not. I trust that I have made myself clear on the question, as to my own views. In a later paper I will take up the treatment of these conditions.

THE STATUS OF ELECTRICITY IN MEDICINE.

BY J. T. PRATT, M.D.

VOLTAIC electricity is produced by the expenditure of energy in a chemical process being partly manifested by the electrical state produced in the elements; more or less chemical action is going on constantly in the process of nutrition, and, therefore, the body may be regarded as a battery for the production of electricity; but the amount thus produced is far too small to be appreciable except by the most delicate tests. When, by chemical action, two elements are put in a state of electrification their electric condition is unlike, and if they be jointed together there is a tendency for the difference between them to be equalized by means of the passage along the line of connection of the so-called "current." Place a copper cent on the tongue and a silver quarter placed under the tongue, their edges in contact, a "current" passes through the tongue, and is perceived as an acid taste. It is ignorant to suppose that anything is actually running through a wire—as the term "current" might imply—but only that a change of state is taking place in the wire which tends to propagate itself in a definite direction from the carbon toward the zinc; if the wire be cut in two, its ends attached to sponges, and the sponges laid upon the body; then this change of state which takes place in the wire attached to the carbon up to its point of contact with the skin is propagated to the other wire through the body, and the parts of the body between the two sponges are put in the same state as the wire; it is then said that "a current is passing through the body." Wire is known to assume this change of state easily, and thence it is called a "good conductor," while the human body does not, and hence it is said to resist the action of electricity, or "a bad conductor"; it offers as much resistance to the passage of a current as does three hundred miles of or-

dinary telegraph wire. Strong currents have to be employed in order to affect the body at all; while the chief resistance to the passage of electricity is offered by the skin, which is practically a non-conductor, and in order to overcome this it is necessary to keep it warm and moist with a solution of salt, or else to penetrate it with needles, applying the electricity this way. The former of these methods is commonly employed, and even then the resistance of the body amounts to about two thousand five hundred ohms; the tissues beneath the skin offer resistance in different degrees, the muscles conducting much more readily than the nerves or the bones. Electricity in passing through the body is generally diffused through the tissues between the poles; yet there is no reason to believe that the human body acts like a homogeneous mass, and it is probable that electric currents uniformly pass along the lines of least resistance. When a current is sent through the body it is not uniformly diffused in the tissues, but passes chiefly through the muscles and blood-vessels, which offer the least resistance, and affects to a slighter extent the nerves, and least of all, the central nervous system protected by its bony covering. In order to reach the nerves the current must be specially applied to them; Starr illustrates this in this way: "If from a reservoir several pipes lead out, some of which are full of rubbish, and others free and open, it is evident that much more water will flow through those which are obstructed, and if it is necessary to wash the latter clean some pumping apparatus is to be used, or by closing the other pipes a great pressure of water in the reservoir must be secured. The same thing is true of the passage of electricity through the body. It will pass along the easy ways, and as it is impossible to concentrate accurately its action upon any one set of tissues its effects must always be uncertain. The amount of electricity sent through the body is measured by a galvanometer exactly as currents in wire are measured. But the body is so sensitive that only a few thousandths of an ampere of current can be borne." The voltaic current passing through the human body produces three different effects, catalytic, cataphoric and electrotonic. In catalytic effects, a current of electricity, when sent through a compound substance, decomposes it into its elements, the action being termed "electrolysis or catalysis." The human body, being a highly complex structure, and affected by the electric current exactly as water is affected, is decomposed by the passage of electricity; with weak currents this process may be but slight, and, since many nutritive processes are attended by such chemical changes, it has been proven that a mild electric current may aid nutrition by hastening or assisting the chemical changes ordinarily going on. Professor Thacher, of Yale College, applied the current for a week at a time alternately to the two arms of a person suffering from paralysis, and, by measuring the strength of the hands at the end of each week he found that the power increased more rapidly in the arm to which the electricity had been applied than in the other arm. Thus the gain in size and strength under the use of galvanism is shown as follows: (Starr).

	Galv. arm.	Untr'd. arm.
(1) Gain in strength first week (left).....	17°	12°
(2) Gain in strength second week (right.).	15	10
(3) Gain in strefigth third week (left).....	7.4	0.9
Total	39.4°	2.92°

That is, the galvanized arm made almost double the progress of the other (1 : 1.72). But in the same person no evidence of gain was found from the use of faradic electricity or from massage. Such results are due to the increased rapidity of chemical changes caused by the catalytic action of electricity. Should the current used be strong, the catalytic action becomes so intense that tissues are destroyed and blisters raised at the two poles. At the same time the tissues about these blisters become affected much as if they had been burned, and the resulting sores are slow to heal and leave deep scars; a strong electric current being very destructive to the body-tissues. This catalytic action is more intense the more concentrated the current; hence in its medical application, small-pointed instruments should be used; the action is employed for the decomposition and destruction of new growths, such as tumors, in the body, and in order to enlarge passages or cavities which have become constricted by disease. Its after-effects are unpleasant, and it may be extremely painful; and other methods of medical procedure are more precise and successful. This catalytic action has also been employed to remove hairs from the face, a fine needle being inserted at the side of the hair and the current being allowed to destroy the root from which the hair grows; here it has proven of service, and if carefully employed leaves no trace. The reckless handling of electric batteries or the giving of shocks simply to amuse is, therefore, to be avoided, and the danger of touching a wire used in electric lighting cannot be too strongly urged, for the strong current may disintegrate the body-tissues so rapidly as to destroy life almost instantaneously. The next action of a continuous galvanic current is to move along with it the fluids which lie in its path, the so-called "cataphoric action." If a partition of parchment be fitted in a bowl, and two fluids, one salty, be poured into the compartments, and if the positive pole of a battery be put in the salty fluid and the negative pole in the other, the electric current will carry the salty fluid through the parchment into the other compartment and raise the fluid to a higher level. This "osmosis" forms an important part of the process of nutrition and of growth; as electricity will promote osmosis it may increase the nutrition.

It is one of the powers of electricity to produce in the molecules which make up the various organs changes of irritability in one direction or the other. Such changes are greatest in intensity near the poles, and diminish at a distance from them, so that at a point in the body halfway between the poles one effect is neutralized by the other; this electrotonic effect is quite intense in its results upon the circulation, that it stimulates it, and thereby has a beneficial effect in promoting nutrition; to it can be ascribed the refreshing effects of electricity, the sense of invigoration and comfort that follows the use of a general mild current applied to the entire body when fatigued. Such an effect is quite comparable to the restoring effects of a swim on a hot summer day. To the quieting effect produced by the positive pole of the current is due the relief of pain which follows its application; in many painful affections of a nervous or muscular character the application of a mild, continuous voltaic current, with the positive pole upon the painful part, gives relief; but the quieting or exciting effects of electricity would be of much greater advantage in the practical use of the agent, if they could be more exactly controlled; unfortunately, after a current has

passed through the tissues for a time, and is then stopped that a condition ensues under the respective poles, which is just the reverse of the former state. For example, under the anode, where excitability had been quieted, it is now generally increased above the normal, a complete reaction having taken place; the anode may fail to relieve pain permanently, though quite effective for a time, while under the cathode, where excitability had been increased, there is at first a quieting effect of very short duration followed more intense even than the former state. Following the cessation of passage of a current there remains at both poles a condition of excitability. It follows, therefore, that the passage of the current is stimulant in its general and its local effects; it is this effect which causes the increased circulation already alluded to, and the sense of invigoration; it is perceptible in the redness and heat of the skin under both poles. It has a decided and permanent effect upon the elasticity of the blood-vessel walls, for if, several hours after an application of electricity, and long after any redness of the skin has passed away, the limb be placed in a warm bath, the redness at once returns in the parts to which the poles have been applied.

In the use of the interrupted voltaic current, we know that on stopping the current as it passes an increased state of excitement can be induced in the tissues. If it is desired, then, to produce excitement, the result can be reached by making and breaking the circuit alternately, thus producing an "interrupted current." Or, if a great increase in the irritation is sought, the current can be reversed rapidly, so that a part of the body may be thrown alternately into a state of anelectrotonus and katelectrotonus, each being used to re-enforce the other. Such reversal of the current is termed a "voltaic alternative," and is most intense in its effects, producing more severe shocks to the body than any other procedure. The excitement produced by an interrupted or an alternative current is employed very extensively in the treatment of paralysis, for by it muscles may be made to contract when they are incapable of voluntary exercise. In this way impulses may be sent along nerves; the sudden change of state in the muscle or nerve caused by the electric shock throws it into action, while the passage of a continuous current does not have the same effect. The interrupted current, therefore, differs from the continuous current in its action on the various organs, having the power of setting them to work, and this effect is of considerable interest. Thus when an effort is made to close the hand there are several processes gone through with; an act of the will directs the character of the movement to be made, taking place in the brain, which is transmitted along the nerves, from the brain to the muscles, as an impulse. A contraction of the muscles follows, producing the desired motion; each of these processes can be set going by an electric shock. Thus if the current be applied to that part of the surface of the brain which controls movements of the hand, the motion is made, just as if by act of will; or if the current be suddenly applied to the nerve in the arm, an impulse is there started which also travels to the muscle and causes the hand to close; or if the current be suddenly applied to the muscles of the hand directly, and not through the nerve, the hand again will close. It is evident then, that the electricity will produce the same effect as the will-power, no matter whereabouts it is applied in the motor apparatus, while tickling or numbness, or heat or pain, is felt at the point of application of the electric poles on the skin of the hand, according to the strength of the current. If the current be applied to the nerve in the arm, which comes from the skin of the hand, the same sensations are felt in the hand. This is because the hand is joined to the brain by nerve-threads, each part of the hand being joined to its own particular area of the brain, so that one can imagine a little map of the hand projected on the surface of the brain, and all sensations from the hand are perceived in this little area of sensory brain surface. Now, as all sensations reaching that brain surface have in one's experience come from the hand, when a change of state is produced in that brain area it is perceived as a sensation and referred to the hand. Hence, when an impulse started by electricity in the nerve-threads from the end arrives at the brain a perception follows, and the sensation is referred to the hand, the brain having no means of correcting its false impressions except through the aid of other senses. It is because of this fact that people have sensations in amputated limbs long after the amputation, and also for this reason that imaginary pain is really as severe as any other. Electricity, then, sent through a sensory nerve will produce changes of state in the brain which we feel as sensations of touch, temperature or pain. So it is in sensory nerves of sight and hearing and smell and taste.

If a current be sent through the eye we see a flash of light; in a dark room it will be found that when the negative pole is applied to the eye and the current is sent, a whitish-yellow light is seen; when the current is stopped a bluish light is seen; when the positive pole is applied to the eye and the current is sent a bluish light is seen; when the current is stopped a whitish-yellow light is seen. This is an ocular demonstration, not only that electricity affects the optic nerve, but also that the poles differ, and that closing the circuit at the positive pole and opening the circuit at the negative pole are similar in their results. Send a current through the ear; a noise will be heard when the negative pole is put on the ear and the current is closed, also when the positive pole is put on the ear and the current is opened; the acoustic nerve lies so deep that these effects are only obtained by strong currents. When a current is going through the head at any point a decided metallic taste is perceived in the mouth; acid at the positive pole and salty at the negative. These experiments show that when a shock is given to a sensory nerve an impulse is sent to the brain and there produces a change of state which is perceived as a sensation. The kind of sensation received depends upon the part of the brain affected, since each part has its own function. The functions of the brain may therefore be set in action by electricity reaching it through the nerves; so it is if the electricity be applied directly to the brain surface. This direct application can be made in animals, and has been made in man when by a fracture of the skull the brain has been laid bare. Sensations of light, sound, touch, taste and smell are then perceived, similarly as they are excited by its application to the sensory organs or to the nerves from the organs to the brain. It is this difference of effect when different parts of the brain are excited that gives one of the many proofs that each part of the brain has its own particular work; as a matter of fact, the earliest experiments which led to the discovery of the localization of brain-functions followed the application of electricity to the brain; the discovery that interrupted electrical currents can set the brain in action has been one of real importance to medical science, and

has resulted in the saving of human life. Another important fact in this connection is that in certain diseases the muscles and nerves lose their power of being excited by rapidly interrupted electrical currents, such as are produced in a faradic apparatus; it enables a paralysis due to disease in the nerves to be distinguished from paralysis due to disease in the brain; also serving to expose those whose object it is to deceive, such as lazy soldiers in the army, lazy criminals in prisons, and chronic loafers in hospitals who do not want to work, and who often feign paralysis. During the last few years since electric lighting has been introduced generally, the newspapers have published from time to time accounts of serious accidents due to electric shocks received from the wires. In such cases the wire, which has not been properly insulated, has come in contact with some part of the body, and the electric current has passed through the body into the earth; unfortunately, the currents used in lighting are several hundred times greater than those which can be safely applied to the body; the shock received is enormous, and the sudden change of state in the molecules of the body is so severe as to arrest all vital processes; usually the individual is killed instantly. The most serious forms of nervous disease may be produced by such a sudden change of state in the molecules of the body; it must be a molecular effect, for there is no evidence of disease in any of the organs when examined after death; the shock seems to suspend all vital activity in the finest cells without lacerating or destroying the different organs. Should the shock received come from a "continuous current," and this passes for a few moments the body may be severely burned, while hemorrhages are found in the brain and other organs; when it is the alternating currents which kills, no such effects are found. Here the shock in the latter case is more severe, death is more common in accidents from alternating currents. The fact that death may be instantly caused by a severe electric shock led to the proposition to use electricity in capital punishment, and it is well known that a commission of experts, after careful experiments, have indorsed this method, which has been adopted in several States. The method employed in the experiments in Edison's laboratory is to attach the two wires to any part of the animal's body, and then by closing the circuit, either with an ordinary key which may be moved by the hand or by clock work, or by a hammer, to send the current through the body of the animal. It was found that an alternating current of seven hundred and fifty volts is sufficient to kill a horse. Despite sensationalists, there can be no question that such a method of execution is more certain, more sudden, and less offensive to spectators than that of hanging.

Frictional or static electricity, the form produced as the name implies by the friction of bodies which are in a different electrical state, is illustrated in the household experiment of walking across the room without lifting the feet on a dry day; if any metallic object is touched a spark flies from the finger to the object. This is due to the fact that frictional electricity has been generated in the body by the rubbing of the feet on the carpet, while the dry state of the atmosphere prevents its immediate diffusion from the body into the surrounding air. Should the air be damp such diffusion occurs so quickly that no accumulation is possible, and hence on a damp day one cannot get a spark from the finger end. The same effect can be produced by holding one's hands against a revolving glass ball, which is a method of obtaining frictional electricity pointed out by Hawksbee; without friction no spark can be obtained, and unless the metal be touched as soon as the friction is made no spark will fly, which illustrates that ordinarily the body is not in a state of electrification, and will not stay electrified. Consequently a permanent storage of electricity in the body is impossible, unless it be carefully insulated, by placing a person on a high chair with glass legs, and by having in the room some dishes containing sulphuric acid, to absorb moisture from the air, then if the body is rubbed vigorously frictional electricity will be produced and stored up. Should the person rise from the chair, or touch any object in contact with the earth, a spark passes and a slight shock is felt; the tension is relieved and the natural condition returns immediately; instead of generating static electricity by direct friction, it is better to convey it to the body from a frictional machine under the same conditions. While the sparks are passing, various sensations are perceived and effects noticed, but as soon as they have ceased there appear to be no permanent results from the application. As a pith-ball hanging by a thread and attracted to the glass rod becomes, by contact, charged with positive electricity from the rod it at once jumps away from the rod, being repelled from it because it is now in the same electrical state as the rod, so the human body can be charged with either positive or negative electricity, and while insulated after being thus charged it will attract things in an opposite state and repel things in a like state, for example, when the body is put into an electrical state by friction the hair rises and stands on end; this is due to the fact that the body and the hair, being in the same electrical state, repel each other, and the hair being moved, rises.

The same repulsion is felt by air about the body, as it becomes charged by diffusion from the skin; if the body is rapidly charged the movement of the air about it may be rapid and be felt as a breeze. This is the same as "the electrical breeze" which flows from the points of an electrical machine, and which may be made to blow out a candle or turn a little vane. As pointed out by Starr, there is no more curative power in the electrical breeze than there is in any draught of air, although the most absurd statements of its effects have been made; but if the amount of the electric charge is too great to pass off thus easily into the air, an occasional spark will leap from the body to any near object which is not insulated; should the experiment be performed in the dark one may see innumerable little sparks coming from the hair, so that there appears to be an electric halo about the head; frictional electricity resides on the surface of the bodies which are charged with it. This is shown if an insulated metal ball be covered with two spherical disks and then charged with electricity, it is seen that when the disks are removed they contain all the electricity, and the ball beneath them has none at all. So it is with the human body, and, therefore, frictional electricity never penetrates beneath the skin, or produces directly any effects upon the deeper tissues. Of course, it may produce indirect effects; for the skin is very sensitive; and any sudden change of electrical state produced in it, such as the giving of sparks, causes a decided irritation of the surface. This is appreciated by pain at the point from which the spark jumps, and if the spark be large it may burn and raise a little blister. Now irritation upon the sensitive nerve of the skin, whether by a spark or a sudden blow, sets up a nervous impulse which is carried along the

nerves and which causes a number of effects. One of these effects is a sudden movement of the irritated part. One suddenly draws one's hand away from a lighted cigar before one realizes what is touched; again there is a reddening of the skin, which is a sort of provision of nature to counteract the effects of any destructive process by increasing the nutrition of the part injured. And the third effect is a conscious perception of a sensation which leads to a train of thought and a state of emotion pleasurable and invigorating, or painful and depressing; "the electric breeze" is rather pleasant, while sparks are decidedly disagreeable. The general effect of static electricity is similar to that of a cold bath, or the muscle-beating of the Swedes, the lomilomi of the Sandwich Islanders, the whipping with twigs in a Russian bath, or the needle-douche of a Turkish bath. All these agents stimulate the circulation, and produce a sense of refreshment which is harmless, and may even be beneficial. There is no mystery about their action, and no very especially curative effect in disease. This has led to the employment of static electricity to produce marked mental impressions; with "mind cure," "Christian science," and "hynoptic suggestion" discussed on all sides, it needs no argument to prove the interaction of mind and body. The decided effect of expectant attention in modifying slight functional disturbances is admitted by every one, and may be honestly employed in the treatment of disease; in certain maladies an agent so startling and impressive as electrical sparks should be employed to excite "the expectation of cure." In hysterical persons, whose ailments are due to a deranged imagination, it is enough to impress the mind with a positive persuasion that the agent employed is able to cure, and to obtain the effect. It is not universal that the supposed mysterious powers of electrical sparks have been extolled for the purpose of impressing the mind. Nor is it to be wondered at that without any deception favorable results should have followed the use of static electricity in the hands of physicians who can distinguish the class of cases in which it is likely to be successful; such results are wholly indirect and due to mental expectation, and should not be ascribed to the electricity. This fact should prevent its abuse or any expectation of its curative power in real organic and serious disease.

In Faradism, the interruption in a very weak voltaic current is employed to produce a strong induced current in a coil of wire, and this induced current is then applied to the body; it does not appear to have any catalytic or cataphoric action. There is no anelectrotonic or a katelectrotonic effect, because there is really an alternation of the two as in the voltaic alternative. It has about the same effect upon the body as a voltaic alternating current, and may be employed to stimulate the nerves and muscles, to increase the circulation, and possibly to aid nutrition generally. The induced current can be produced in an apparatus much smaller and more easily portable than any other current. When such effects as it will cause are desired, it is the one employed as a matter of convenience; its limitations are many, and hence it is less frequently used for medical purposes than the voltaic current. The fact that this current is induced by magnetism should not be taken to imply that by it magnetism can be made to act on the human body. The most careful experiments have shown that the human body is as completely insensitive to magnetism and as wholly unaffected by it as a piece of rubber or of wood. A person may stand between the poles of the strongest magnet, one which might hold up a ton of iron, without the slightest perceptible effect upon any of the bodily functions being produced. Hence all so-called magnetic appliances, brushes or combs, disks, belts, and magnets have absolutely no curative power; it is true that a few of these may, by friction, produce static electricity, while some are so constructed of two kinds of metal that on contact with the skin, whose perspiration is acid, a very weak voltaic current is produced, scarcely sufficient, after several hours, to redden the surface. The majority of the effects produced by such contrivances are due, like those of the static current, to expectant attention rather than to any action of the agents employed. Starr once demanded of the agent of a widely advertised "electric belt" some proof that an electric current was produced by it, and suggested that any such current could be detected by means of a galvanometer. This test being objected to, a little frame holding a dozen pocket-compasses was produced, and the power of the belt, which doubtless contained some iron plates, to attract the needles of these compasses, was shown as proof of the production of electricity in the belt; many who were ignorant of the difference between electricity and magnetism had been deceived by this so-called test. Not infrequently there is seen upon the streets an electric machine with ringing bells, and a large index adorned with a sign "Electricity is life." Such machines are usually faradic batteries, and when one takes hold of the handles the current is strong enough to cause the hands to close forcibly upon them so that he cannot let go; the strength of the current being determined by the distance to which the outer coil of wire is moved over the inner coil, as in any faradic battery; so that the index in such a machine has no relation to the strength of current, and is manipulated by a screw in the hands of the exhibitor. A fraud on the public, for it does not indicate the strength of current used. There is really no limit to the amount of current which one can endure except a limit in the pain which can be borne. Currents received from such a machine or from any battery in this manner can never be specially beneficial.

The Ideal Antiseptic.—While the ideal antiseptic has not been discovered, there has been, says *Medicine*, a great improvement in remedies of this sort. Many have been prepared which are markedly inhibitive of the lower forms of life and at the same time are not markedly destructive of the higher forms. Among the latest candidates, is lusoform, recently described by Gourmand (*Th'ese de Paris*, 1903). It is said to be a powerful antiseptic, non-toxic, and to have no cauterant action. It deodorizes rapidly, and has an agreeable smell. In a word, it unites the maximum bactericidal effect with a minimum of toxicity. According to Gourmand it is destined to occupy an important rank among the usual antiseptics.

Lusoform is a combination of formic aldehyde and potash soap, which forms a clear liquid, soluble in water, of agreeable odor, and of alkaline reaction. It is powerfully destructive of the ordinary pathogenic bacteria, and it is especially useful in surgery for the disinfection of instruments and the preparation of the field of operation. Its toxicity is one-tenth that of carbolic acid. By reason of its alkalinity it has a facility of penetration of the skin not possessed by other antiseptics, and is especially valuable in disinfection of the hands.

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One look at the face of heaven and earth lays all petulance at rest and soothes us to wiser convictions. —Emerson.

THE AMERICAN MEDICAL ASSOCIATION.

THE American Medical Association has recently held one of its most interesting and successful meetings. The attendance reached nearly three thousand, and there is no question but that a registration of thirty-five hundred could have been achieved if the reaffiliation of the Medical Society of the State of New York had been consummated in time. It is rather to be regretted that this could not have occurred, and, looking backward, the delay seems to have been due to technicalities which could easily have been removed if the general spirit of good will and fraternity had not met with a check in certain quarters of our own State. However, a year's delay in settling so important a matter is of no great consequence, and the obstructionists seem to have realized that this was their last chance to make a stand. There seems to be a general consensus of opinion in both branches of the New York State organization that one of the first acts of the reunited State Society should be to lay out an ample cemetery, and to inter the politicians of both sides who have opposed harmony.

Atlantic City is an ideal place for conventions, and, in reviewing the experience of the American Medical Association in the past and in looking forward to future meetings of greater magnitude, it seems to be a wise policy not to accept the hospitality of smaller cities with limited accommodations, or, indeed, of any city, in which any degree of hospitality in the strict sense of the word, will be necessary to provide for the entertainment of the Association. It is much better to meet in places in which provision for a large floating population is ample at the time of the Association meeting, and in which entertainment can be provided by the Association itself, without imposing too great a burden even upon a willing local branch, or necessitating an appeal to lay public spirit.

A tremendous improvement in the social and scientific standing of the American Medical Association is a conspicuous feature to any one who has attended the meetings for a series of years. The time was when one could hardly be proud of the personnel of the Association, in its average, and when the avidity of the "women folks" who attended its meetings, to get the most of the hospitality extended to them, led many members to refrain from bringing their wives and daughters. Any possible criticism on this point now seems to have been done away with, and yet without interfering with the truly democratic nature of the Association. So, too, there has been a vast improvement in the quality of the programs. With a little selection the present program could be made to compare favorably with that presented at the Congress of Physicians and Surgeons last year. Going back five or six years, it must be admitted that many of the papers presented were decidedly mediocre, and we recall distinctly that, at Columbus in 1899, a very pointed criticism was made in at least one of the sections of the quality of one or two papers presented, and publication was refused. Even men of attainments, formerly made no pretense of presenting their best work at the American Medical Association meetings, and some admitted pretty frankly that they attended for business rather than scientific reasons. The time is certainly past when any physician can read any kind of a paper at the American Medical Association meeting. In a sense, this is undemocratic, but it is a wholesome manifestation of aristocracy—the aristocracy of intellect, We may already look forward to the time when the decidedly and admittedly undemocratic policy of maintaining medical societies of exclusive requirements will cease to fill a want, and when all national medical organizations will be concentrated in, or, at least, clustered about the American Medical Association. Every member of the profession will then enjoy the privilege of competing for honors, although the enjoyment of such honors without adequate preparation and ability will be a thing of the past. Such a result will have its beneficent effect in establishing a high standard of excellence for the whole profession. It will not be pleasant to the individual to be found wanting, but the ultimate effect will be most salutary in discouraging mediocre schools from continuing a useless existence, and in discouraging men useful enough in certain walks of life, but not competent to take their place in what ought to be the most learned of the so-called learned professions. The sordid cares of physicians to-day are almost entirely due to undeserved competition by men who have reached the medical profession by short cuts through the field of preliminary education.

Chicago has the distinction, if distinction it be, of having the largest number of medical schools of any city in the world.

CONVENTIONS AND THE RAILROADS.

THE American Medical Association at its latest meeting at Atlantic City secured a considerable concession from the railroads as compared with the abominable "fare and a third, on the certificate plan." Aside from the reduction of rate, however, little was gained, in spite of the announcement that a straight, round-trip ticket would be sold. As before, tickets had to be deposited at the terminus with the joint ticket agent, every ticket had to be called for in person—with no exceptions for ladies and infirm persons—it could not be secured at a convenient time before departure, and the clerical service was inadequate, so that long delays were inevitable. Persons who assumed that they could redeem their tickets in a reasonable time before the departure of a train missed their train, as they have heretofore.

Here is an illustration of the working of the joint ticket agency. One of the attendants at the meeting deposited with his own ticket that of an elderly lady, a member of his party, signing her name, per his own, on the deposited slip with the agent's consent. As a special favor it was announced that those leaving on early morning trains could redeem their tickets between 4 and 6 o'clock of the preceding day. He called for his tickets at about 5, stood in line for over half an hour, presented his slips and was refused the lady's ticket on the ground that every ticket had to be signed in the presence of the agent. It should be stated that every ticket had been signed at the place of purchase, and that the holder of a ticket could be forced by a conductor to write his or her name at any time, to obviate the possibility of transfer. In spite of this ample protection against transfer or forgery, and the circumstances of the case, it was necessary for the party in question to arise at an unseemly hour in the morning, make a separate trip in a carriage to the agency, which was not convenient to any station, and to waste at least an hour's additional time in redeeming the second ticket.

At the 1900 meeting of the American Medical Association, the viseing of tickets was done in the station, and many persons who had allowed half an hour or more for the purpose, stood in line in the station and saw their train depart, simply because of the totally inadequate provisions made by the railroads.

It is highly complimentary to the respect for law and order felt by our people that a crowd of exasperated men should submit to the arbitrary ruling of a trust of private corporations when the latter are represented by a force insufficient properly to perform routine clerical work, and wholly inadequate to oppose any violent demonstration. But there are two sides to any such matter. We confess to some sympathy with the southerner who deplored the fact that the times were getting so peaceable that men could be impolite with impunity. Moreover, when a public carrier takes advantage of our lack of legislation to do its own law-making to the discomfort of citizens, it manifests a spirit of lawlessness just as great and just as dangerous to the best interests of the community as that which finds expression in deeds of violence.

The joint agency system imposes a tax on each person subjected to it which amounts to a dollar or two in actual expense and time. The mere fact that one buys a round-trip ticket at what may be termed wholesale rates, no more justifies this tax than the purchase at wholesale of any other commodity justifies the subjection of a purchaser to indignities and expense from which the retail purchaser is exempt. Our railroads necessarily entrust the care of a considerable amount of valuable property to the traveling public. It seems, on the face of the matter, unwise to make the public feel that the railroads have wantonly done them damage.

We would point out to the American railroads the fact that European roads regularly issue round-trip tickets at a considerable reduction from the regular fare—which is, on the whole, less than in America—and that a European round-trip ticket is literally so and not merely a back-and-forth ticket. Such a ticket allows the traveler to make a circuit about as he pleases, with stopover privileges at the end of any section, and with choice of two or more routes for equivalent distances for each section, and with a total time limit much more liberal than is ordinarily granted in this country.

The Joint Ticket Agency nuisance has for its object the prevention of the transfer of a portion of a ticket. Even if round-trip tickets were sold without any restrictions whatever, most of them would be used both ways by the original purchaser. It is difficult to understand why the railroads go to the expense and impose upon their patrons the nuisance of the viseing of tickets. Granting that tickets are transferred we fail to see why the railroads should care. Even at the best excursion rates ever granted the transaction is a profitable one, and it makes no difference whether the same passenger is carried both ways or whether one passenger is carried one way and another the other. Of course, if the railroads can save transportation in cases in which some emergency prevents the return within the limit set and can prevent the coincidence of two strangers using the two halves of an excursion ticket and compel each to buy a one-way ticket at full price, they have got so much more for their commodity or, rather, have given so much less commodity for the price. But it is difficult to understand how the sale of unused portions of tickets can be important enough to counterbalance the increased business which would ensue from a liberal sale of excursion tickets and the negative value of a traveling public which has not been subjected to needless annoyance.

It should be understood that the sale of a railroad

ticket is not a sin, even though railroad influence has made it a crime in some states. If, for any reason, a railroad issues a pass or grants a lower rate to an individual because of a difference in age or occupation, as in the case of children's and clergymen's tickets, it is plainly dishonorable for another person to enjoy the hospitality of the road. With an excursion ticket the matter is entirely different. When a railroad advertises that it will sell tickets to such a place on account of such a meeting, and that the public generally may purchase tickets, there is no personal courtesy or favor shown to any one, and, so far from having the right to insist that the same person shall use the ticket in both directions, the railroad has not even the right to ask the name of the person to whom the ticket is sold—except as this right is secured by manipulation of a legislature or is exercised because the public cannot help itself.

We have in the American Medical Association executives of business sagacity, and we trust that, in the near future, they will be able to do away with the joint ticket agency nuisance, and secure a bona fide round-trip ticket with which the purchaser will have no trouble from the time of the purchase until he has left the last coupon in the hands of the conductor on his return trip. We have argued somewhat at length as to the right to sell property that one has bought, even when that property is a token representing transportation. From the practical standpoint this is a minor matter. Let the railroads have our photographs, autographs, phonograph records of our voices, statistic details of our past lives or anything else with which they can establish our identity, but let them do their identifying during passage, and not consume our valuable time while at conventions.

THE NEW PHARMACOPOEIA.

At the recent meeting of the American Medical Association, Prof. Joseph P. Remington announced that the new revision of the U. S. Pharmacopoeia would probably be published about the first of October, and that it would become official and operative three months afterward. The preparation of this work has occupied more time, care and systematic effort than ever before in the history of this important book.

Some fifteen or twenty of the synthetics are to be admitted for the first time under an abbreviated form of their true chemical name. The copyright, trade names, etc., will be mentioned as synonyms. No synthetic will be admitted unless repeated and long continued clinical trials by many practitioners has demonstrated that it has a real value and known therapeutical effects.

The standards for purity will, in many cases, not be so stringent as formerly, but are easier and more practical. They will be known as Purity Rubrics, and will apply only to medicinal drugs and chemicals, and not to the commercial articles that are used in the arts, manufactures, etc.

The tinctures will be uniformly 10 or 20 per cent. in strength, and for the first time poisonous galenicals will conform to the standards of the proposed International Pharmacopoeia. This will necessitate a number of important and radical changes in strength and doses. This edition of the U. S. Pharmacopoeia is the first publication of its kind to adopt the new international standards which, when they are in general use, will be of great value to the medical profession.

The average dose will be given, which is a new feature and has been approved by all of the members of the Committee, as the maximum doses of the German Pharmacopoeia has made considerable trouble, as physicians in Germany are required to mark their prescriptions special, if more than the maximum amount is prescribed.

THE IMPERISHABLE CORONER.

THE recent attempt to abolish the Coroner's office in New York State came very near indeed to being successful; so near that the press generally, both medical and lay, made jubilatory comment as if upon an accomplished fact. However, the Coroner continues serenely with us, and will remain until Senate, Assembly, Governor and Mayor will all agree to remove this office; even though a few juicy salaries may thus be lost to practical politics.

Certain it is that the Coroner's office has been deserving of censure in this city, as was the case in Massachusetts, where it was superseded by the Medical Examiner system in 1877. But the fault has really been with the machinery of the office, and with such vicious conditions as obtain generally in American municipal politics.

The Coroner (or some equivalent official) has some decidedly important matters to attend to; certain of these it were perhaps pertinent to set forth here.

An indispensable adjunct of government is an officer charged with the duty of investigating deaths from other than natural causes. In countries such as this, where British traditions prevail, this duty has generally been accomplished by means of a Coroner's inquest, a very gruesome institution, and one as hoary and venerable as English law itself. It was established firmly in the twelfth century; it was a "Crowner's quest" that attended to poor Ophelia. The Coroner in England investigated suspicious deaths, shipwrecks, treasure trove, and the goods of felons. He was, and theoretically, still is, a conservator of the king's peace, and a ministerial officer, acting for the sheriff in executing processes when the sheriff is disqualified or suspected

of partiality. The citizen of this no mean city may smile in recalling how a prisoner once escaped from Ludlow Street Jail, having rendered his keeper innocuous by the exhibition of a metal whiskey flask which was mistaken for a pistol; the keeper's piteous but post-operative cry, "der chail ist owid"; the opprobrium cast upon the Teutonic sheriff, in whom lay jurisdiction over this jail; and the public insistence that he be arrested by a particular coroner, a gentleman of his own race and political household.

An inquest, or some substitute for it, has certainly been of the utmost importance in any community not utterly barbaric. However different the mode of procedure may be, the objects sought for and the lines worked upon are practically the same. Two main things have to be learned, "whenever any person has been slain or has suddenly died, or has been dangerously wounded (so that death is feared), or has been found dead under such circumstances as to require an inquisition," and these are: First, the cause of death; and second, if anyone has caused the death, the person or persons responsible. The meaning of the phrase "sudden death" extends to cases where death has followed an illness of less than twenty-four hours, and where a regular physician has not been in attendance beyond that length of time.

It may be inquired whether death was due to accident or homicide; and, if there were traumatisms, when, where and how, by what means and by whom, they were inflicted. And the surgeon may be called upon for accurate descriptions of wounds, contusions, fractures, burns or whatever the nature of the injury may be in a given case; and the full medical history may be required.

It is quite important that the surgeon should, for his own protection, record the character of any operation performed for the relief of an injury where the prognosis is grave. The condition of the patient before the operation (especially as to inflammation and possible septic processes), the character and the details of the operation performed, and its sequelae, should be described in exhaustive notes. The operation should not be decided upon except after consultation and in the presence of at least one colleague, especially in abortion and homicide cases; for the surgeon has upon his shoulders not only a medical but also a medico-legal and moral responsibility. There should be the strictest antisepsis, and as perfect technique as may be; and the surgeon should be able to state clearly (if called upon the witness stand) the necessity for the steps taken and, in the event of death, to what extent, if any, the operation may have been contributory.

A large part of the coroner's or the medical examiner's time is taken up with cases where the unofficial mind does not see the necessity for investigation; as, for instance, where there is a fracture of the femur in the aged, or erysipelas consequent upon a quite innocently inflicted wound. The following are some examples of causes of death given in certificates sent to the Health Board, which have been referred to the coroner's office for investigation: Asthenia de senectude; contributing cause, fracture of the femur. (The fracture was sustained, let us say, in falling out of bed or in slipping on the street. But some one may have struck or pushed the deceased, thus becoming in some measure responsible for the death. In any event, whenever the result of an accident has contributed, no matter how remotely, to the death, the case becomes one for investigation.) Meningitis; Erysipelas; Peritonitis; Gastro-enteritis. (It should in such cases be stated whether the disease was idiopathic or the result of a fall, a wound, a blow or the ingestion of a poison.) Convulsions; Heart-failure; Oedema of Lungs. (Such are immediate causes of death; the underlying essential causes should also be given.)

If in a "coroner's case," the attending physician would immediately after the death, mail to the coroner's office, or leave at the house of the deceased, a letter giving in a few words the medical history, and his opinion whether the death was due to natural causes, he would greatly help to simplify matters, and the coroner (or the coroner's physician, who first sees the case) would be sincerely grateful for the assistance given. Besides, such a statement would in appropriate cases obviate the issuing of a subpoena for the physician's appearance in court.

UNTO THE THIRD AND FOURTH GENERATION.

DR. PRINCE A. MORROW submits in the new *New York Medical News of June 4*, A PLEA FOR THE ORGANIZATION OF A SOCIETY OF SANITARY AND MORAL PROPHYLAXIS. The object of this Society would be "the study of the means of every order—sanitary, moral and legislative—(the legislation of prostitution excepted), which promise to be most effective in preventing or diminishing the spread of diseases which have their origin in the social evil." Physicians, the clergy, the law, public educators, sociologists and public-spirited men generally are to make up the membership. For the class of diseases under consideration cannot be dealt with as a purely sanitary problem, nor are they susceptible to the application of the sanitary methods ordinarily employed against contagious diseases. The cause of venereal diseases resides in social conditions which the sanitarian cannot control. In their essential nature they are not merely diseases of the human body, but diseases of the social organism; and the problem of their prevention is most difficult and delicate and requires for its solution not

only a thorough knowledge of existing social evils, but a largeness of ideas and a breadth of view which is possible only in a union of all the social forces which work for good in the community.

The need of such a society appears to be unquestionable. Venereal diseases, together with alcohol and tuberculosis, constitute the three great modern plagues which afflict humanity. Tuberculosis has been subjected to sanitary control, leagues have been formed against alcohol, but the venereal plague is practically ignored in this country. Nevertheless, syphilis, as Prof. Gross years ago pointed out, is "a greater scourge than yellow fever, and smallpox, and cholera combined; and it is quietly installed in our midst, sapping the foundations of society, poisoning the sources of life, rendering existence miserable, and deteriorating the whole human family." More than this, as Sir Thomas Watson stated a generation ago, "it counts its victims not only in the ranks of the vicious and self-indulgent, but among virtuous women and innocent children by hundreds and thousands." And we now have come to appreciate that gonorrhœa, which is considered by many laymen of no more significance than a common cold, is even a greater curse to the human family than syphilis. It is estimated that in this country alone, 450,000 venereal infections occur at about the sixteenth year; in addition to this, each succeeding group of males furnishes its quota of victims, so that the total morbidity from this constantly cumulative growth forms an immense aggregate.

Syphilis is a dreadfully serious disease when viewed in the light of our knowledge of the number, variety and gravity of its far-reaching complications, and especially its morbid determinations to the internal organs most essential to life. Many affections of the brain, the cord, the liver, the heart, and the arterial system have their origin in syphilis. The brain is of all the internal organs most frequently affected, and paresis is the most common termination. While syphilis, in the adult is not a frequent cause of immediate death, the changes set up in certain organs are often the essential cause of death at a more or less remote period.

Gonorrhœa, besides tending to render the individual sterile, may cause complications of a serious or fatal character, such as pericarditis, meningitis, etc.; women often suffer most cruelly from inflammations of the pelvic organs which they have thus innocently contracted, and thus do they have their health ruined, and capacity for conception extinguished, and are as a result condemned either to a life-long invalidism, or to the sacrifice of their reproductive organs to save their lives.

After discussing the effect of venereal disease upon family life, and the frequency of marital contaminations, Dr. Morrow dwells upon remedial measures. These are: to prevent the healthy from infection; and to prevent those already infected from infecting others. The most efficient means of prophylaxis is a general diffusion of knowledge respecting the dangers, individual and social, of venereal diseases, and their modes of communication, direct and indirect. But few of the 4,000,000 males in this country, between sixteen and twenty-one, have received even the most elementary instruction regarding the organs of generation; comparatively nothing has been taught of the diseases which are almost inseparable from intercourse with bad women, or of the serious consequences to health which such diseases entail. Education would certainly prevent thousands from exposure.

"To whom this education should be addressed—what should be its scope or extent, and how, or through what agencies, it should be imparted—are subjects for consideration by the proposed Society." This enlightenment cannot come altogether through the agency of the medical profession, for the physician, both in his private and dispensary practice, generally sees the sufferers after the harm is already done. The mode of education must be collective and conveyed by means of lectures, conferences, tracts or circulars. It is not for the physician alone to organize such popular education. The proposed Society should be a centre for the diffusion of such enlightenment; it should certainly propagate the idea that this hygienic education forms the most essential part of the training of the morals of the young man. When, then, in the course of time, knowledge of these matters shall have been disseminated, the plea of ignorance can no longer be considered to shield those who carry disease and death into their families. Such acts should then be declared legal crimes, involving not only civil but penal responsibility.

In fulfilling the second indication, the most valuable prophylactic measure is the prompt sterilization of sources of contagion by efficient treatment. At present such treatment is notoriously inadequate, restrictive and ill-adapted to the nature of the disease. Venereal patients are barred entrance into our general hospitals and discriminated against in various ways. For instance, of the thousands of respectable married women in New York City infected with syphilis by their husbands, some require hospital care, which they can receive only in the female venereal wards of the City Hospital; here they are compelled to inhabit the same room, and to sleep in beds side by side with the lowest and most abandoned prostitutes. Young girls under fifteen who come under the care of the *"Society for the Prevention of Cruelty to Children,"* when found diseased, usually from criminal assault, are placed in this same ward, and detained until they are pronounced cured.

Society has generally been apathetic and inactive concerning these venereal diseases, largely from the mistaken idea that they are always contracted through voluntary exposure and bear the stamp of immorality. The public generally does not know that the immense majority of infections occur in the young, the inexperienced, and the irresponsible through ignorance and lack of moral training; it has no conception of the number of innocent women and children who are infected in the marriage relation.

It is a pleasure to note that the project advocated by Dr. Morrow has received the unanimous endorsement of the New York County Medical Society; and that the co-operation of many influential members of the laity—those who can influence public sentiment, institute educational reforms, and secure needed legislation—has been promised.

INDIVIDUAL PROPHYLAXIS.

IN the excellent book on *The Prevention of Disease,* Dr. Martins dwells upon "the sum total of medical counsel and rules intended to protect the individual human being against disease. In this sense medical prophylaxis guides the individual through the entire course of life from the cradle to the grave." Again he notes, with regard to tuberculosis, that "to bring up a weakly child who may be hereditarily trained so that it shall not succumb to the threatening danger of tuberculous infection is individual medical prophylaxis." In the same volume Dr. Posen observes, in commenting upon individual prophylaxis, that the physician ought not to wait until he discovers an impaired note at the apex of the lung or hears rales, or till the discovery of tubercle bacilli with the microscope makes the suspected diagnosis of tuberculosis a certainty, before he begins to treat the patient hygienically and dietetically. In this same sense Dr. Mendelsohn, in discussing diseases of the heart, observes that a truly scientific prophylaxis of heart disease can only be carried out by the physician who makes a functional diagnosis, not an anatomical one. It is not enough merely to auscultate and percuss and because nothing abnormall has been detected by this procedure, to conclude that special prophylastic measures are necessary.

We should note here a seeming antagonism between individual or personal prophylaxis; and general or public prophylaxis. Between these two, there would seem to the evolutionist to be a dreadful contradiction. For individual hygiene the physician strives to improve the life even of the most wretched human being, and his efforts are the greater the more feeble the individual. On the other hand, public or general or racial hygiene would seem to have, on the principle of the survival of the fittest, for its ultimate aim positively to eliminate the weaklings and thus to improve the race as a whole. However, this distinction is not so important as may at first sight appear; for there is another principle of evolution which asserts itself here, and that is that nature is constantly striving to recover lost perfection. Moreover evolution is not merely materialistic; it is spiritual, mental and moral as well. And often these latter aspects of evolution are of more transcendent power and significance than the merely physical or materialistic. If this were not the case then would altruism be an error, as also civilization and indeed Christianity itself.

THE HISTORY OF TUBERCULOSIS.

IN Dr. A. Hillier's excellent book on *The Prevention of Consumption,* there is a historical chapter in which one may comprehend in a few swift glances the history of this disease from Hippocrates to Koch. We shall here consider for a moment the mediæval aspect of this subject.

During the Dark Ages Europe was essentially dominated by an unholy theology which required absolute submission and adherence to the teaching that plagues and epidemics were visitations of an angry God; and the tendency of this theology was to suppress a rational investigation of the causes of disease, such being held to be in some sort a sacrilege. As if indeed a just and merciful God would cruelly torture and destroy his own creations, which must appear to an omnipotent Creator (humanity must always have appeared to him thus) so pathetically helpless and innocuous; as if reason and the ascertainment of knowledge were not states of the human mind as essentially God-given as any other, to be employed as conscientiously as any other; as if the use of these wholesome faculties were in any way incompatible with the possession and exercise of the deepest religious sense. Thus it was that many millions of lives were destroyed which might otherwise have been saved; and, what will even much more appeal to the consideration of the humane, infinite wretchedness and infinite pain could have been alleviated had it been possible to apply scientific measures to disease conditions.

However, let those who would consider this spirit of intolerance toward scientific research to have passed away, reflect upon the anti-vaccination movement which, in the most civilized communities, seeks to prevent the slight and harmless procedure, by means of which one of the most dreadful of scourges has been rendered practically obsolete. Moreover, the Health Boards of large cities have very great difficulty in enforcing the simplest sanitary regulations, not only among the poor and ignorant, but even among those who exhibit in most other matters the possession of elemental common sense.

Then there are the pseudo-religionists of the present day, typified by the "Eddyots," who are causing much cruel suffering and many unnecessary deaths by

their insistence upon the disregard of the simplest principles of sanitation; some members of the community oftentimes becoming victims of the infection thus propagated.

The candid student of history must admit that during the darkness of the Middle Ages in which Europe was enveloped, Mahommedanism exhibited a scientific enlightenment, the spirit of which is not excelled in modern civilization. There was among them a wonderful development in nearly all the arts and sciences; and among the brightest jewels in this intellectual crown was Saracenic medicine. We may refer here only to Avicenna, the Arabian (1037), who, like the best observers of antiquity, had definite ideas regarding the infectivity of consumption; he referred to "many diseases which are taken from man to man like phthisis."

SURGERY IN NEPHRITIS.

THE most brilliant advance in recent years has been the invasion of surgery into the region of diseased kidneys. All surgical teachings, since surgery was made a science, preached as a primal rule that in chronic and acute nephritis, surgical operations must be rigidly interdicted. Hence the boldness of the mind which dared to attack such teachings can scarcely be appreciated, except by surgeons. When Edebohls recommended this procedure he was naturally somewhat overawed with the temerity of his advice, if it had proved fallacious, he would undoubtedly have been branded as a harum scarum surgical adviser. Further experience, however, has commended his advice and broadened its application.

In recent issues of the *New York and Philadelphia Medical Journal* he has described his further experience with this operation, which has now been performed at least two hundred times, seventy-two times by Edebohls himself. At first he placed the case before the patient, and permitted the latter to decide as to the advisability of operating. Now Edebohls states that "gradually accumulating experience and knowledge of the final results in a sufficiently large number of cases to entitle me to an approximately final judgment have changed all this. I would consider myself derelict to duty imposed by knowledge gained from experience if at the present stage of the question, and with three conditions fulfilled, I fail to advise renal decapsulation for every sufferer from chronic Bright's disease who consults me, and who has a reasonable expectation of not less than a month of life without operation."

According to Edebohls, these three conditions are: First, the clear and unequivocal establishment of the diagnosis of chronic Bright's disease; second, the absence in the given case of absolute contraindication to *any* operation; third, the possibility of securing the services of a surgeon reasonably familiar with renal surgery. Of these three conditions the second only is necessary of discussion. If the patient is in impending dissolution with characteristic dyspnoea, with threatening acute dilatation of the heart, or with poisoning of the respiratory centres, Edebohls advises against an operation. Yet his results have been so excellent in dubious cases that even here his decisions are not ironclad, for intestinal parenchymatous and diffuse chronic nephritis have all done well under surgical conditions, and, in fact, far fetter than could reasonably be expected. Edebohls operated at first largely on cases of interstitial nephritis, but he limits his field no longer. Of seventeen cases of interstitial nephritis operated on, eleven are cured, three are progressing to cure, one is improved and only two are unimproved. Of nineteen cases of diffuse nephritis, six are cured, eight are progressing towards a cure, two are improved, and three are unimproved. Of seven cases of parenchymatous nephritis, three are cured, two are progressing to a cure, and two are improved.

Contraindications to this operation as to age are relative only as well as are cardiac and vascular changes. Patients after this operation often exhibit pronounced improvement from cardiac hypertrophies and derangement to conditions approaching perfect health. Edebohls cites one case where an applicant for life insurance, turned down before operation, was issued a policy afterwards, his condition being so improved, not only in kidneys, but in the cardiac region. In cases of retinitis albuminurica his results are not so good; this condition shows widespread disease of the vascular system, and unless the patient is young, operation is not advisable.

It is yet a problem how renal decapsulation accomplishes its good results. The common theory seems to be that the diseased capsule compresses the renal tissue so that the circulation in the blood-vessels and secreting structures of the kidneys are seriously impaired. But no such renal tension has been found; if it exists, it is impalpable to the operator. Generally, the capsule fits the kidney rather loosely. Jaboulay attributes the immediate good effects of decapsulation to improved nutrition of the kidney, due to vasomotor influences. Edebohls interprets this phenomena in the one word, "massage." A new capsule forms, as proved in experiments on animals, and in the few autopsies performed on patients who died subsequently. Yet this new capsule is not a menace, as experience has proved. The fear of possible danger from contraction of the new capsule can be dismissed.

The success of this procedure has led to its trial in other diseased conditions of the kidneys. Decapsulation has been performed for acute nephritis, acute pyelonephritis, pyonephrosis, hydronephrosis, puerperal

eclampsia of renal origin, and polycystic renal degeneration. Roswell Park now advises decapsulation of every kidney operated upon for any reason, as the advantages of a new and increased blood supply to any kidney struggling to throw off disease are clear.

As to the operation itself, Edebohls does not change his procedure, as published in 1901. He simply advises the fixation always of the decapsulated kidney to the muscles of the back, and he emphasizes the necessity of securing healing by first intention. Suppuration is not well borne by nephritics, and the difference between primary union and this condition may mean the difference of life and death.

A lay writer has described this operation cleverly, "with the surgeon's help the kidneys take off their coats and go to work in their shirt sleeves."

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A Text-book of Operative Surgery.—Covering the Surgical Anatomy and Operative Technic involved in the Operations of General Surgery. Written for Students and Practitioners. By Warren Stone Bickham, Phar.M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Second revised edition. Handsome octavo of 984 pages, with 559 illustrations, entirely original. Philadelphia, New York, London. W. B. Saunders & Company, 1904. Cloth, $6.00 net; Sheep or Half Morocco, $7.00 net.

Two large editions of a work within a period of six months must certainly be most gratifying alike to the author and the publisher.

The text completely covers the surgical anatomy and operative technic involved in the operations of general surgery. It is constructed on thoroughly new lines, the discussion of the subject being remarkably systematized and arranged in a manner entirely original. A feature of the work to which we would call especial attention, and for which alone it is well worth the price, is the wealth of superb illustrations. There are 559 of them, all entirely original. They depict the progressive steps in the various operations detailed with unusual clearness, and at the same time represent the highest artistic excellence. The text is fully abreast of the latest advances in surgery, all the recent improvements along the line of technic being adequately discussed. Another feature distinguishing it from other works on operative surgery, is the treatment of the anatomic side of the subject in connection with the operative technic. The illustrations will be found of particular assistance in this connection, the muscles, bones, etc., being clearly indicated, together with the lines of incision. Because of the short time that had elapsed since the appearance of the first edition, in making the revision for this second edition, it was found only necessary to correct some few typographical errors which had been overlooked. It is a splendid work, and we have yet to see its superior for its purpose.

Electro-Diagnosis and Electro-Therapeutics. By Dr. Toby Cohn, Nerve Specialist of Berlin. Translated from the Second German Edition and edited by Francis A. Scratchley, M.D., of New York. With eight plates and thirty-one illustrations. Cloth, 280 pages. Price, $2.00. Funk & Wagnalls Company, New York and London.

This is an authorized translation, with reproductions of the original plates.

As Dr. Cohn explains, in his preface to the first edition, the appeal of this work is to students and practising physicians who are almost wholly ignorant of the subjects of which it treats, owing to the method in which these have hitherto been presented.

In his discussion of electro-therapeutics, the author is less pedagogic and more advisory. It is a subject in which the student who has mastered and is practising electro-diagnosis can form his judgments for himself. Dr. Cohn not only permits but insists upon skepticism as the attitude to be assumed in such mooted questions as the curative power of the electro-therapeutic currents, whether it is purely psychological, the result of suggestion, or physiological in its nature.

The character of the work as an "object-lesson" textbook is greatly enhanced by the eight anatomical plates, with coverings of transparent paper upon which are indicated in red the points of application of the electric current. The book is thoroughly indexed.

The Practical Medical Series of Year Books.. Comprising ten volumes on the year's progress in medicine and surgery. Issued monthly under the general editorial charge of Gustavus P. Head, M.D. Vol. V. Obstetrics. Edited by Joseph B. De Lee, M.D., Professor of Obstetrics, Northwestern University Medical School. April, 1904. Chicago, The Year Book Publishers.

The editor has collected, arranged, and digested to some extent the literature of this subject for the past year and presents the same in practical form for the busy practitioner.

Diseases of the Intestines and Peritoneum. By Dr. Hermann Nothnagel, of Vienna. The entire volume edited, with additions, by Humphrey D. Rolleston, M.D., F.R.C.P., Physician to St. George's Hospital, London, England. Octavo volume of 1032 pages, fully illustrated. Philadelphia, New York, London; W. B. Saunders & Company, 1904. Cloth, $5.00 net; half morocco. $6.00 net.

This new volume in Saunders' American edition of Nothnagel's Practice is the eighth to be issued, and appearing within two months after the publication of the volume on Tuberculosis, gives evidence that the publishers intend completing the series at an early date. This, one of the most valuable volumes in the series, is by the famous clinican Dr. Hermann Nothnagel himself, and is as exhaustive as it is practical. The distinguished editor, Dr. Humphrey D. Rolleston, of London, England, has used his pen most profusely, almost every page giving generous evidence of his careful editing. The editorial additions include sections on Intestinal Sand, Sprue, Ulcerative Colitis, and Idiopathic Dilatation of the Colon. Appendicitis and Peritonitis have been given unusual space, treatment and diagnosis receiving exhaustive consideration. The section on Intussusception has been greatly enlarged by the invaluable additions of D'Arcy Power, of England, who has made this subject his own. There are 20 inserts of superb plates, covering various forms of Stenosis, which are worthy of attention.

Tuberculosis and Acute General Miliary Tuberculosis. By Dr. G. Cornet, of Berlin. Edited, with additions, by Walter B. James, M.D., Professor of the Practice of Medicine in the College of Physicians and Surgeons (Columbia University), New York. Handsome octavo volume of 806 pages. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $5.00 net; half morocco, $6.00 net.

This is the seventh volume to be issued in Saunders' American Edition of Nothnagel's Practice, and the remaining four volumes are in active preparation for early publication.

The American edition of Professor Cornet's exhaustive work appears at a time when the subject of tuberculosis is especially claiming the attention of mankind. Recently both professional and general public interest in the disease has taken enormous strides. In almost every civilized community societies for the prevention of tuberculosis are being organized, and these are composed not only of physicians but of laymen, while governments themselves are taking an active part in the movement. Under these circumstances, and at this time, the work is of interest to practitioners, for there is no other treatise which gives an equally clear and comprehensive view of this subject.

The article on Acute General Miliary Tuberculosis has been admirably written and gives a thoroughly clear understanding of this disease.

The importance of the Chemistry of the Tubercle Bacillus and its bearing upon Immunity have warranted a thorough treatment of this subject.

The work is complete and logically arranged, and the editor has made additions where necessary to bring it down to date.

Obstetric and Gynecologic Nursing. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in the Jefferson Medical College and in the Philadelphia Polyclinic. 12mo volume of 402 pages, fully illustrated. Second edition, thoroughly revised. Philadelphia, New York, London; W. B. Saunders & Company, 1904. Polished Buckram, $1.75 net.

The usefulness of this book to the nursing profession is manifest by the fact that a second edition has been called for. It is necessary for an obstetric nurse to possess some knowledge of natural pregnancy and of its consequent diseases; and as gynecologic nursing is really a branch of surgical nursing, special training and instruction are required to meet the conditions arising. This book just fills the need, everything that the obstetric and gynecologic nurse should know being included. The second edition shows evidence of having been carefully revised throughout, and considerable new matter has been added. It would be well if every trained nurse possessed a copy of this book, for it certainly is of inestimable value.

Epilepsy and its Treatment. By William P. Spratling, M.D., Superintendent of the Craig Colony for Epileptics at Sonyea, N. Y. Handsome octavo volume of 522 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $4.00 net.

This work is of unusual interest for many reasons: It is the first complete treatise on the subject since the appearance of Echeverria's work over 33 years ago, and represents the practical experience of the author as Superintendent of the Craig Colony for Epileptics at Sonyea, N. Y., during a period of ten years. The great progress made in the knowledge of Epilepsy and its Treatment during the past fifteen years certainly demanded an accurate and careful work which would include the latest advancements. Of particular interest are the chapters on the Psychologic and Medicolegal Aspects. An entire section is devoted to the all-important seizure type—Status Epilepticus; and Treatment, general, educational, medical, and surgical, is discussed with wisdom, thought, and conservatism. The subject is bountifully illuminated by the citation of illustrative cases; and, indeed, for the entire work we have nothing but praise. The general practitioner as well as the specialist will find the book of great value.

Clinical Treatises on the Pathology and Therapy of Disorders of Metabolism and Nutrition. By Prof. Dr. Carl von Noorden, Physician-in-chief to the City Hospital, Frankfort-on-the-Main. Authorized American Edited by Boardman Reed, M.D. Part V. Concerning the Effects of Saline Waters on Metabolism. New York, E. B. Treat & Company, 1904. 12mo, pp. 92. Price, 75 cents.

In view of the great interest that balneological methods of treatment are exciting nowadays, the results of these investigations are a welcome addition to our therapeutic armamentarium. The clinician will find here some important practical questions authoritatively decided, and many antiquated and unscientific notions refuted. This book belongs to a series of most valuable treatises.

"The Story of New Zealand." By Professor Frank Parsons, the well known writer and authority on law, economics and sociology; edited and published by C. F. Taylor, M.D., editor of *The Medical World*, and of "Equity Series," Philadelphia, Pa. Handsomely bound in cloth, over 170 illustrations, many of which are full page. Octavo, pp. 860. $3.00 net.

The direct historic review occupies 500 pages illumined by more than 100 illustrations. After this the principles involved in New Zealand's progress are gathered into one section, and the birth days of progress tabulated. Then the principal services rendered by the People's Trust, Civic Fraternity, or Co-operative Industrio-political Combine called "The Government," are summarized, the conservative view of the Liberal Movement is developed and prevalent misstatements and misapprehensions are cleared up.

The volume is unique in the literature of the world. It is history, biography, psychology and sociology welded into one, lighted with art and humor, charming as the unfolding of a powerful drama, forceful as clear and vigorous English can make it. Never before has the political, industrial and social history of a people been gathered into one richly illustrated and delightful volume. Never has a writer had a subject more full of hope for the solution of the most pressing problems of this age. Never has the relation between successive increments of popular control over the government and the improvement of industrial conditions been so clearly marked. Never has the curve of progress taken an upward sweep so like the path of a rocket. "From savage cannibalism to the highest civilization in a life time from one of the poorest countries in the world to the richest (per capita) in half a century, from racial war to racial harmony in a generation, from industrial war to industrial peace in a decade, from charity to justice, competition to co-operation, monopoly to diffusion, despotism to democracy; government by landlords and the

money power in their own interest to government by farmers and workingmen in the interest of all as the outcome of a great election, is certainly a record of change in condition and policy, which for quantity, quality and speed of progress is without a parallel."

Medical Diagnosis. Special Diagnosis of Internal Medicine. A Handbook for Physicians and Students. By Dr. Wilhelm v. Leube, Professor of Medicine, and Physician-in-Chief to the Julius Hospital at Wurzburg. Authorized translation from the Sixth German Edition. Edited, with Annotations, by Julius L. Salinger, M.D., Late Assistant Professor of Clinical Medicine in the Jefferson Medical College, and Physician to the Philadelphia Hospital. Pp. 1058. With five colored plates and seventy-four illustrations in the text. Cloth, $5.00; half leather, $5.50. Sold only by subscription. D. Appleton & Company, New York, 1904.

This is a plain practical work describing disease and the various differential points in a lucid manner, and is a storehouse of bedside knowledge. The main features of this text-book consist in the explicit differential diagnoses. If it is true that rational treatment depends upon the accuracy of diagnosis the fundamental requirement of the therapist will be diagnosis in its broadest sense, which should cover disease in its course, complications and prognosis. The author has succeeded in presenting some of the most difficult problems of the diagnosis of "Internal Diseases" in a clear, and concise manner, worthy the attention of American readers. The fact that a medical book has reached its sixth edition in the course of twelve years is some evidence of acceptability.

The Chronic Diseases. Their Peculiar Nature and Their Homœopathic Cure. (Theoretical part only). By Dr. Samuel Hahnemann. Translated from the second enlarged German edition of 1835, by Prof. Louis H. Tafel. 269 pages. Cloth, $1.25. Postage, 10 cents. Philadelphia. Boericke & Tafel. 1904.

The publisher says: "This volume, which contains the theoretical part of Hahnemann's Chronic Diseases, has been issued at the urgent request of several Professors in Homœopathic Medical Colleges, who wish to use it as a college text-book." The first edition of this remarkable book is dated 1828, and literature of such antiquity is generally looked upon by the scientific world as a curiosity. It appears, however, that there are those who still have use for it, perhaps influenced by the sentimental aspect of the case, and it is sufficient that we announce the fact that a work which has been out of print for many years may now be obtained.

RETROSPECTIVE THERAPEUTICS

Masturbation and Enuresis.—Dr. G. E. Beilby (Med. Soc. St. N. Y.) presented the results of his study of enuresis in some 600 to 700 children in the State Industrial School in Rochester. Among these children from 4 to 8 per cent. are affected. The ailment is very much more common in boys than girls. Of 75 cases carefully studied these last three years, 71 were boys. Most of the patients were from ten to fourteen years of age, though some of them were from eighteen to twenty-one years. Of these at least 65 would be considered to have sufficient intelligence to exercise proper control of function. There were no vesical irritants, stone or the like, and no rectal irritation present. None of the patients suffered from severe phimosis.

Dr. Beilby found that in all but four cases masturbation was practiced. Some of the patients denied it strenuously, but were observed carefully by attendants and later admitted it. This connection between nocturnal enuresis was noticed by Jacobi as long ago as 1876. In his article in Keating's Encyclopedia of the Diseases of Children, more than ten years later, he insists on this idea. There seems to be even a direct relation between the amount of the masturbation and the extent of the enuresis. Careful observations were made in this matter.

Camphoric Acid as a Prophylactic against Catheter Fever.—In a paper read before the Seventh French Urological Congress, A. Freudenberg recommends camphoric acid as a preventive of the well-known chills and fever following intravesical and intraurethral operations. Especially after Bottini's operation this complication appears to be frequent. The author has found that camphoric acid administered for several days before the operation in doses of 1 gm. (16 grn.) three times daily will prevent the usual fever, unless some complication, like epididymitis, etc., is responsible for the rise of temperature.

The remedy is best given in capsules. As a desirable by-effect the author has noted the favorable action on cystitis. The remedy affects the stomach somewhat, but only after prolonged use.

An Aseptic Method of Introducing the Catheter.—J. Swiatecki (*Centralblatt f. Chirurgie*, No. 7, 1904) gives an illustration which is worthy of consideration, showing the very easy manner in which a rubber catheter can be introduced without contamination. The catheter is caught a short distance from the tip by a long gynecologic or dressing forceps, the other end is held between the thumb and the forceps, thus bending the catheter in an incomplete circle. The left hand is free to manipulate the penis or separate the labia, as the case may be, and does not come in contact with the catheter. The catheter and forceps, of course, are sterilized previous to using, the hands also. However, since a thorough disinfection of the hands is not always done when catheterization is to be performed, the reason for this technic becomes obvious. This method has been used in the Warschau surgical clinic several years.

Morbid Self-Dieting.—The *Medical Sentinel* condemns the diet craze, and hits the nail on the head in the following words: The conviction is steadily growing in the profession that disturbances of digestion, let alone other disease, are due in eight cases out of ten, not so much to the food used, either in quantity, quality, or method of cooking, as to the circumstances under which it is eaten; the disgraceful hurry and rush with which business or pleasure is resumed before the digestion has had time to get fairly under way, and the utter lack of an adequate amount of exercise in the open air to enable proper combustion of the food. Further than that, we are reacting decidedly from the exclusive and rigid diet for almost any condition whatever, with the partial exception of diabetes. Even where these exclusive diets may relieve the symptoms which they are designed especially to meet, they are very apt to upset the general balance of nutrition and impair the vitality, frequently, in the long run, aggravating even the symptoms, or the disease, which they were prescribed to cure. On the same subject is an article in the *World's Work* (February), on perfect feeding of the human body, which is only a description of

how one man, Mr. Horace Fletcher, having been refused life insurance on the ground of stomach trouble, corrected his habits and vastly improved his health. He does not diet in the ordinary understanding of the word. He eats everything, but in small quantities. He has a rule to take thirty chews on each portion of food he places in his mouth. He says that the longer he chews the better it tastes. He now eats one-third or one-quarter what he formerly ate. He can do physical exertion equal to an athlete in training without fatigue, and finds less sleep necessary. This is not a new theory, but it is all right. Morbid introspection is the bane of the dyspeptic. An abundance of time to eat, thorough mastication and cheerful surroundings are better than all the diet lists and breakfast foods that have ever been prepared.

Prolonged Fasting as a Factor in the Treatment of Acute Diseases.—Briefly summarized, Morton J. Sands' views upon this subject are as follows:

1. Acute illnesses in general, of any severity, do better without nourishment, for the reason that, on account of the fever and the poison of the disease, the food is not digested or assimilated; and, if not, adds a gastro-intestinal disturbance to the already existing disease.

2. In acute diseases of the alimentary canal, in particular, all nourishment should be withheld until complete subsidence of symptoms. It is quite possible for a patient to last twenty-one days, or even longer, without the development of any alarming weakness.

3. The indications for the allowance of food are the absence of abdominal symptoms, a cleaning of the tongue, and a continuously normal or subnormal temperature.

Treatment of Constipation Through Hypnotic Suggestion.—The relief of constipation by the use of suggestion is an old practice. Delius points out that defecation depends not only upon the local irritation in the rectum, but upon a central automatic influence. The proof of this is found in the occurrence of the impulse at regular intervals, bearing no relation to the amount of fecal material in the lower bowel. A large number of cases of constipation arise from the suppression of this central impulse leading gradually to insusceptibility to stimulation. The use of cathartics and enemas, by accustoming the intestine to marked irritation, is likely to prove harmful. Delius treats these cases by hypnotic suggestion to defecate at a given time. After a time, through repeated suggested impulses the automatism is again restored and the patient cured. He has treated in this manner 84 patients, with complete cure in 80 per cent. and relief in 15 per cent.

Professor Paterno, an Italian, has suggested a process for the purification of drinking-water which constitutes a great step forward in the study of this important problem, says the *Tribuna*, Rome. From numerous and extensive experiments made by this author, it appears that by adding to impure water, even when containing pathogenic microbes, an extremely small quantity of silver chloride, there is accomplished the complete disinfection of the water. For this purpose 2 mg., or at most 2½ mg. of the chloride is sufficient to absolutely sterilize a liter of water and to eliminate every danger of infection. The sterilization is completed in a few minutes—ten at the most—and no apparatus is required beyond a small vial with a solution of silver chloride.

THE CLINIQUE

ANASARCA TREATED BY A MECHANICAL METHOD.

A number of German observers have treated anasarca in a mechanical way with success. The apparatus consists of a rubber band widened at one area, at which point there is an opening about 8 cm. in diameter; in this opening is placed a rubber funnel, which is fastened to the band. The outlet of the funnel is connected with the tube, and after careful disinfection of the skin a number of incisions are made close to each other, the funnel is closed by means of the band, and the incised area is kept absolutely protected from air and from infection. Fifteen cases were treated with this apparatus by Dehio, with apparently extremely successful results; as much as ten or twelve litres may escape in this way in one day. It is important not to put the funnel on very tightly, as this interferes with the flow; it is merely essential that it shall be so applied that air cannot enter beneath it. It is always important that the patient should lie with the incised area on a low level. Dehio believes that proper mechanical treatment of anasarca will have very successful results if it is undertaken sufficiently early; a valuable point about the apparatus is that it allows of a ready collection of the fluid. The fluid, which was obtained in a series of cases of nephritis, has been compared with that obtained in cardiac failure with general venous stasis; the most striking fact was that while the albumin in the cardiac cases was always above two parts in a thousand and reached as high as five parts in a thousand, in the nephritic cases it never went above 1.5 parts in a thousand, and in most cases was present in traces only, but estimation of the nitrogen showed that this was about equal in the two classes of cases; it was a little higher, as a rule, in the cardiac cases, but there was not a great difference. Undoubtedly, in nephritis the fluid of the anasarca contains, besides albumin, some nitrogenous substances which are absent in mechanical oedema of cardiac disease. These are probably products of protein metabolism which are not properly excreted through the urine. The observations of other workers have shown that in general the transudates in cases of nephritis are of lower specific gravity, than in cases of cardiac failure. In nephritis, for instance, the specific gravity of the ascetic fluid averages about 1006, that of hydrothorax 1007, and that of anasarca (Dehio) 1007. With general cardiac failure the ascitic fluid is about 1012, the fluid of hydrothorax is about the same, while that of anasarca (Dehio) is almost the same as the anasarca of chronic nephritis, 1008. The fluids of hydrothorax and ascites have been found to contain much less albumin in cases of nephritis than in general circulatory failure—conditions similar to those found by Dehio in anasarca. For instance, the ascites of nephrites was found to contain 0.2 per cent., and that of general nephritis was found to contain 0.2 per cent. and that of general circulatory status 1.7 per cent. It is notable that the fluid of the subcutaneous tissues seems, according to Dehio's investigations, to be much poorer in albumin than that of transudates into the peritoneal and pleural cavities, as his average for anasarca was in cardiac cases 0.36 per cent. albumin, while in ascites and hydrothorax there have been found 1.6 per cent.. and 1.3 per cent. The results which Dehio obtained seemed to confirm the statement previously made by Hoffman, that if the fluid of anasarca contains

less than 0.1 per cent. of albumin, severe diseases of the kidneys may be diagnosed. All grades of variation existed between the very low percentage in pure nephritic cases and the high percentage in cardiac cases—a very natural observation, as the renal condition and the cardiac condition have varying degrees of importance in such cases, and it is only rarely that anasarca is purely nephritic or purely cardiac. The results of the study of the oedema fluid and normal blood plasma shows the fact that while salts were present in both cases in about the same amount the albumin and the dry residue in general were far greater in blood plasms than in the fluid of oedema. This suggests that in oedema the capillary walls permit the salts to pass very easily, while they maintain considerable resistance against the passage of albumin.

FRACTURE THROUGH THE ANATOMICAL NECK OF THE HUMERUS.

Bramwell has shown the unusual occurrence of fracture through the anatomical neck of the humerus, and the difficulties associated with its diagnosis. Hence I report this condition which is a fracture occurring generally in advanced life; in young persons falls on the shoulder are usually followed by such injuries as fracture of the clavicle, separation at the epiphyses, or simple dislocation. When fractures of the upper extremity of the humerus are compared with those of the same region of the femur, a marked resemblance is at once apparent. They may be divided into two classes, viz.: Intracapsular fractures; being those which implicate the anatomical neck of the humerus alone, and produced by the sharp margin of the glenoid cavity cutting through the neck of the bone. Extra-capsular; produced by the head and neck, being driven into the tuberosities, resulting in comminuted fractures either impacted or not.

The mechanism of the first variety has only recently been clearly made out, and the possibility of fracture of the anatomical neck, with a dislocation of the joint occurring at the same time is now proved beyond doubt. The simple intracapsular fracture of the neck of the humerus is caused by direct violence to the shoulder-joint, producing first a partial dislocation of the head on to the anterior margin of the glenoid cavity, when, from a constrained position of the elbow preventing its separation from the side, as in ordinary dislocation, the sharp margin of the glenoid cavity cuts through the anatomical neck. If the capsule of the joint remains unruptured, no dislocation will occur, but if it should be torn, the end of the shaft, and even the head of the bone, may be displaced into the axilla.

Jonathan Hutchinson states that, "It is possible that fracture and dislocation may occur simultaneously. Two or three times I have suspected this, though I have never had the opportunity of proving it or of examining a dissected specimen. It is, a priori, very improbable that such lesions should be produced together; when the neck of the bones snaps by violence, there is no longer any agency by which the head of the bone, now discontinuous with the shaft, should be displaced; and, on the other hand, if once the bone is dislocated, it would be exceedingly difficult by any continued violence to break it. In many cases in which we hear of dislocation and fracture together are really cases of fracture usually high up, and in which the appearances of dislocation are subsequently simulated."

A STUDY OF ALCOHOLISM.

C. L. Dana has published, within a few years, a study of alcoholism from a record of 3,735 cases occurring in the Bellevue Hospital "Cells." The cases of simple intoxication arrested in New York City do not reach the hospital, as a rule; only those being sent who evidently need medical care. Of these three-fourths are men, and the majority of them are between the ages of thirty-one and forty years. Curiously enough, the mechanics, tradesmen, and artisans furnish a greater proportion than do "day laborers." The number varies little month after month, being perhaps greater in summer. It is significant that one-half are Irish, while of the native born the majority are of Irish descent. The patient has usually been drinking two or three weeks before reaching the "cells," until, at last, he can no longer eat, and even liquor is not well retained. He commences to tremble, cannot sleep, and yet is exhausted for want of it; he is oppressed with dread, and has hallucinations. Still the real delirium has not yet commenced, but begins about twenty-four hours after abstinence from liquor. In fact, the delirium is partly due to the withdrawal of the stimulant, and partly to the starved conditions of the nervous tissues. The popular idea that visions of snakes predominate is not correct here; for the hallucinations and delusions are mainly those of being pursued by something; very often the fear of fire is prominent. Generally, the delirium lasts only from twenty-four hours to forty-eight hours; the patient then gradually quieting down, and when he has had a good sleep, convalescence begins. About five per cent. of the patients, however, die in the cells, of exhaustion, besides a large number which are transferred to the wards of the hospital and there die of the peculiarly fatal alcoholic pneumonia, or develop low, muttering delirium, slight fever, and finally die of exhaustion. In about 300 to 400 cases one instance of alcoholic neuritis is found, generally in a woman; alcoholic paralysis more often occurs in those who have not become distinctly alcoholic. Acute alcoholism is not a very frequent cause of insanity, but is an important one.

The cases of acute alcoholism as found in the cells may be divided into several forms: Simple drunkenness, or acute alcoholic acute intoxication, occasionally with lethal poisoning. Delirium tremens of the ordinary type. Febrile delirium tremens, with decided fever, excessive and general tremors, rapid loss of strength, and profuse sweats. Cases of true mania a potu, or delirium inebriosum. Distinction is also to be made between patients who are dipsomaniacs and those who have simply been on a "gigantic spree." A considerable minority of the cases observed were of this class.

A careful distinction between the different forms might lead to more brilliant therapeutic results than are now obtained. Thus simple drunkenness requires little medication, but febrile delirium tremens is excessively fatal, and demands careful watching; while the patient cannot stand powerful hypnotics like morphine and hyoscyamia. Mania a potu is the result of a very little alcohol acting upon a hyperaesthetic and highly predisposed organism; in such cases sedative drugs and nourishing food are demanded. The mortality of the cases observed was considerable. Including those which died of pneumonia, it must have equaled nearly 10 per cent. The treatment generally to be employed consists in at

once stopping alcohol, unless there are such complications as pneumonia. Powders of bismuth and capsicum or rhubarb and soda are given if food is rejected. A mixture of chloral and bromide, sometimes with paraldehyde, is administered every two hours until sleep is produced; or, if this is insufficient, a hypodermic injection of morphine and amorphous hyoscyamine is employed. It is necessary to restrain most patients by tying them down, or better, by placing them in a padded room on a large mattress. Despite all that can be done, the patient will sometimes not sleep except when narcotized, and the delirium continues and death ensues. Cases of alcoholism are growing more numerous yearly.

As regards prophylaxis, Dana claims that long "soaking" with liquor for at least a week is necessary to develop an attack of delirium tremens, and that it is cheap and poisonous liquor which is particularly liable to bring it on. There is, however, no salvation even in pure spirits or in malt liquors or light wines, for, although these latter drinks are relatively harmless in Europe, they are not well borne by Americans.

DISEASE OF THE NEURO-MUSCULAR APPARATUS.

Disease of any part of the neuro-muscular apparatus, the muscles, the motor nerves and the ganglion cells of the anterior column of the gray matter, is apt to extend to the two other parts or to be associated with them. This apparatus begins with the centres in the third ventricle and terminates with the motor end-plates in the muscle. There are reasons to believe that the ganglion cells of the anterior columns are of two kinds, determining either motor paralysis or wasting of the muscular fibre as the first and predominant symptom. Nevertheless, in every case of disease of this region of the cord, there are, sooner or later, both muscular atrophy and motor paralysis. Disease of any part of the neuro-muscular apparatus produces the three symptoms: 1, motor paralysis; 2, muscular atrophy; 3, electrical changes, brought about by degeneration of nerve and muscle. It is easy to understand, then, why there is so much dispute as to which part of the apparatus is affected when these three symptoms are present. As the nervous system can only express itself through the muscles, it is the muscles that we are to study in all diseases of the neuro-muscular apparatus. The disorders of this apparatus are known as: Myelitis of the anterior cornua. Glosso-labio laryngeal paralysis or bulbar paralysis. Progressive ophthalmoplegia. Muscular pseudo-hypertrophy. Progressive muscular atrophy. The first three are due to lesion of the anterior column, consisting principally of destruction of the ganglion cells, with subsequent atrophy of the muscles and nerves; the fourth is of muscular origin; the fifth may be due to spinal or to muscular lesions, or to both. Myelitis of the anterior horns is a lesion in the anterior gray matter of the cord. It produces an acute, subacute or chronic paralysis of the extremities, followed by atrophy and altered electrical reactions of the muscles. In children it is usually confined to one limb; in adults it is generally in the form of paraplegia. It is most common in the first three years of life and between the ages of eighteen and forty. Glosso-labio-laryngeal paralysis is due to implication of the nuclei of the hypoglossal, facial and spinal accessory nerves in the medulla.

It is paralysis usually preceded by atrophy affecting, in order, the tongue, the lips, and lower part of the face and finally the larynx, pharynx, oesophagus and heart. There is difficulty in the pronunciation of the tongue and lip sounds. Progressive ophthalmoplegia is caused by an affection of the nuclei of the ocular nerves in the floor of the aqueduct of Sylvius and the third ventricle. The muscles involved are sometimes the internal (sphincter of the pupil and tensor of the choroid), sometimes the external and sometimes partially both. Muscular pseudo-hypertrophy is a disease of early childhood, beginning with falls and increasing weakness. There is a deposit of fat around the muscular fibres, especially of the lower extremities. The arms and shoulders are usually affected simultaneously, and the contrast between

The existence of infantile acute poliomyelitis is undoubted; that of acute, sub-acute and chronic poliomyelitis in the adult has, however, been questioned. They also report a case in detail which represented symptoms analogous to those of acute poliomyelitis, though there were certain psychic symptoms attending them, but which the autopsy showed to be an instance of polyneuritis. The case was very interesting, particularly in this latter account, and approached in its symptomatology a group of cases described by Korsakoff as "psychic, toxaejic cerebropathy," or polyneuritic psychosis. 1. There exist certain morbid conditions which exactly correspond, from a clinical point of view, to the disease described by Duchenne under the name of acute and subacute anterior spinal paralysis of the adult, and which are, in fact, dependent upon lesions of the anterior horns of the cord. 2. On the other hand, there is a group of symptoms, more or less analogous to the preceding, from a clinical point of view, which may even cause confusion in diagnosis, to explain which no appreciable lesion of the spinal cord can be found. 3. It can be absolutely affirmed in certain of these latter cases that the symptoms are connected with the peripheral neuritis found to be present. 4. There is room to suppose that the cerebral centres, whose participation in the process is proven by the clinical symptoms, play a pathagenic role in these cases. (Amyotrophic polyneuritis accompanied by psycho-motor affections.) It does not seem possible to determine with positiveness the relation which exists between these amyotrophic, due respectively to poliomyelitis and polyneuritis. At the same time the hypothesis which seems most plausible is that of a lesion of the neuro-muscular arc (cerebral motor cells; ganglionic cells of the cord; motor nerves; muscles) by a pathogenic agent which attacks with greater or less intensity the different parts of this apparatus.

OBSTETRIC OPERATION.

Duhrssen concluded from the results of 230 cases of obstetric operations, that the mortality in confinement is not increased by operation. His cases occurred mostly in polyclinic practice, and he regards Cæsarean section as the only operation which adds to the risk of septic infection. He employs strict antisepsis of operator and instruments; uses carbolic acid, 3 per cent., as intrauterine douche; tampons the uterus and vagina for haemorrhage; performs version in flat pelves; incises the cervix and labia when the parts are rigid; pushes the head down into the pelvis by suprapubic pressure before applying the forceps, and applies it often obliquely. In abortion he empties the uterus at once by the finger or curette; in adherent placenta complete narcisis is considered indispensable in emptying the uterus. With these principles of treatment 230 operations were performed with 3 deaths from sepsis, 1 from eclampsia. Morbidity

and results in children were correspondingly good.

The remark that rubbing should be tender and gentle, yet strong, is very good; it arouses dormant capillaries, increases the eara and speed of the circulation, furthers absorption, and stimulates the vaso-motor nerves, all of which are aids and hindrances to the heart's action and to nutrition in general, as more blood passes through the massed region in a given time, and nutrition is thereby increased. It is undoubtedly due to this fact that massage owes its fame. The benefits of massage are not only from its effect upon the capillaries and blood vessels, but particularly by its stimulation of the flow of the diseased and wornout tissues through the lymph channels and lymph spaces.

MEDICAL RESPONSIBILITY.

The case of Dr. Flocken, of Strassburg, is an interesting one in medical responsibility. Along with a druggist and his two assistants, he was charged with the contravention of certain articles of the German penal code, which render it criminal for any one, who, in the practice of his profession or trade, causes the death of a person by neglecting to give such particular attention to his studies as, by his profession, he ought to do. It appears, that Dr. Flocken, who occupies a highly respectable position, was, toward the close of the year, called to attend an innkeeper, Mathias, suffering from arthritic pains, and prescribed a liniment and a mixture. Two spoonfuls of this mixture were taken by the patient within two hours, and shortly afterward he suffered from vomiting and diarrhoea. Nevertheless, a third spoonful was taken, and the vomiting and diarrhoea increased, accompanied by irritation of the throat, constriction of the belly and insatiable thirst. The doctor was again summoned and came. He asked for the bottle which contained the mixture, washed it out with warm water and carefully scraped off the label. He then placed some iodide of potassium in it, added water and ordered the patient to take the new mixture at certain intervals.

After three or four doses the vomiting ceased, but the diarrhoea continued. The doctor revisited the patient and tried other remedies to arrest the diarrhoea, but without success. The patient now became very feeble, complained of a suffocative feeling and abdominal pain, with cold extremities, and died thirty-six hours from the time he first took the dose of medicine prescribed by the doctor. The doctor then asked for his first prescription and took it away with him, and afterward certified the cause of death to have been endocarditis, following upon an attack of articular rheumatism. On the following day an anonymous letter was received by the police authorities, directing their attention to the suspicious character of the innkeeper's death. Dr. Flocken was at once interrogated by the authorities and stated that his first prescription consisted of a little digitalis mixed with either salicylic acid or tincture of colchicum, or possibly with salicylate of lithum. On the following day he confessed to having made a mistake, and then remembered that he prescribed digitalis and tincture of rhubarb. As the prescription had been dispensed by a druggist, Greiner, his register of prescriptions was searched, and one by Dr. Flocken was found, corresponding to that under discussion. It contained infusion of digitalis, salicylate of lithium, extract of rhubarb and syrup, all in ordinary doses; but the register examined was a new one, and seemed to have been begun only two days before Dr. Flocken's prescription was entered. Further investigation showed that the register was bought three days after the day of entry of the doctor's prescription.

The exhumation of the innkeeper's body was then determined on, and was carried out about three weeks after the death. The autopsy revealed no particular cause of death. The mucous membrane of the stomach and intestines was much congested and was covered with several small ecchymoses. All the other viscera were healthy. No poison was found. Meanwhile, information reached the police authorities of the death of another person, a barman, Herter, under similar circumstances, and also the patient of Dr. Flocken. Herter became ill, suffering also from arthritic pains, on the same day as Mathias, and was on that day prescribed for by the doctor, who ordered a liniment and mixture as before. The prescriptions were also dispensed by Greiner. The same results followed the administration of the mixture—vomiting followed the administration of the mixture—vomiting and diarrhoea. The doctor, at his next visit, asked for the bottle, washed it out, scraped off the label, as in the other case, and refilled it with a solution of morphine. The new medicine stopped the vomiting, but the diarrhoea continued, and the patient died on the fourth day after he had begun to take the prescribed medicine. Professor Wieger was called in as a consultant before the patient's death, and was told by Dr. Flocken that the patient had been ordered some colchicum, but the professor attached no importance to this, and attributed the illness and death to a fatty heart and nephritis, preceded by diphtheria, diarrhoea and a gouty attack. Dr. Flocken certified the cause of death to be paralysis of the heart, following upon enteritis with nephritis and pericarditis. Herter's body was also exhumed after about three weeks. The kidneys were much congested, the heart and liver somewhat fatty, and the large intestine showed trace of diarrhoea, without much alteration of the mucous membrane. In this case the registered copy of the prescription for the mixture showed that it contained tincture of colchicum, salicylate of sodium, and extract of juniper, all in ordinary doses. Finally, Dr. Flocken, Greiner and his two assistants were arrested, when the druggist confessed that he had, at Flocken's request, altered the register of the prescriptions, and for that purpose had purchased the new register already alluded to. The original prescriptions had each contained extract of colchicum, but in such dose as would be suitable to the tincture of colchicum. Dr. Flocken now admitted this; but to clear the conscience of the tribunal a large number of skilled witnesses were brought forward at the trial, including men of such eminence as Fluckiger, Schmiedeberg, von Mering, Husemann and Wieger.

It was contended, on behalf of Dr. Flocken, that the dose of the extract prescribed was not poisonous, and that, even if it were, the patient had had the poisonous action neutralized by subsequent treatment, and that they had died from natural causes. Schmiedeberg and von Mering testified that the amount of the extract prescribed—viz., about 0.2 gramme (3 grains) in each spoonful—was equivalent to about 15 or 20 grammes (225 to 300 grains) of the tincture, three spoonfuls, or the quantity taken by each patient, being equal to 45 to 60 grammes (675 to 900 grains), and that such a quantity was undoubtedly poisonous, the maximum medicinal dose being, in their opinion, 6 grammes (90 grains)

daily. Husemann, on the contrary, maintained that the extract is not so much more poisonous than the tincture; that a maximum medicinal dose is, at best, a mere hypothesis; and that although the two deaths might have been due to colchicum, yet they were more probably caused by disease. Wieger asserted that Herter had died of a heart affection. The tribunal found Flocken, Greiner and one of the assistants guilty, and sentenced the first to ten months' imprisonment, and the others to five days and two months respectively. Reuss, the author of the present communication, traverses the conclusions of the tribunal and, of certain of the medical witnesses, and, although admitting that the dose of colchicum prescribed may have been a poisonous one, he contends that Flocken exhibited no criminal neglect—that he had simply made the unfortunate slip of writing extract instead of tincture. He denies that the tribunal received clear evidence as to the deaths being due to colchicum and not to natural causes.

TREATMENT OF PHTHISIS.

From the present great interest in the treatment of phthisis and the restless research for new remedies or modes of cure, some remarks by Hofmann may be cited with profit; this authority agrees with the statement of Sommerbrodt that the beneficial action of creosote in phthisis is in direct proportion to the amount used. Hofmann uses in places of the usual wine and creosote, and the unpleasant combination with cod-liver oil, a mixture of the drug with tincture of gentian in the proportion of one or two. Beginning with ten drops three times daily, the dose is run up rapidly to twenty-five, or even thirty drops. Short interruptions were allowed, and this remedy was universally well borne and exhibited no toxic effects. In cases of laryngeal phthisis, in addition to the creosote internally, nitrate of silver was used locally in substance with the best results.

Even in advanced cases the treatment was carried out, not so much in the hope of curing as for the reason that it seemed to alleviate the symptoms of the later stages; and even in such cases real benefit often followed. Contrary to expectation, in intestinal tuberculosis, and the diarrhoeas referred to it, creosote was of no benefit. In general miliary tuberculosis it is useless, and the forms of disease most benefited have been those with hemorrhages, or with caseous or fibroid degeneration. During actual haemoptysis the use of the remedy is suspended.

The author thinks the most decided value of the treatment results from improvement of the gastric and intestinal digestion, the immediate cause of which he leaves undecided. The rapid improvement of appetite and assimilation soon appears manifest in increased weight and renewed vigor, and through the later the patient is rendered more capable of withstanding fresh inroads of disease; so evident was the effect on the alimentary tract that the author was led to use creosote with benefit in ordinary cases of dyspepsia and gastric catarrh. In bronchitis of children it was with satisfaction, and the recommendation of Sommerbrodt to apply it in cases of enlarged glands and eczema was followed with advantage. Though the use of the mixture, as given above, often causes coughing and hawking, it seemed, on the whole, preferable to capsules, evidently for the reason that the latter cause a greater local irritation where they are dissolved, and the local action in the mouth, throat, and oesophagus is highly desirable.

The Use of Adrenalin in Anesthetic Injections.—Braun (*Ctrlblatt f. Chirurgie*) considers adrenalin of great value as an addition to local anesthetic mixtures, but finds caution necessary in regard to two points, viz., Toxic effects and secondary hemorrhage. Eight centigrams of cocaine, together with eight drops of one to one thousand adrenalin chlorid solution, have caused death, and even three drops are reported by Enderlew to have produced uniformly untoward symptoms. The author has often exceeded this dosage, however, without bad effects. The desired action of the drug, *i.e.*, intensification of the anesthetic properties of cocaine and eucaine, can be produced to the full by amounts so minute as to be absolutely harmless, while larger quantities are undesirable, through their tendency to permit secondary hemorrhage. Contrary to general belief, adrenalin does not cause a secondary relaxation of the vessel walls leading to oozing, but owing to its intense stypic action in larger quantities, even arteries are kept from bleeding, and hence allowed to go without ligature. When the effect of the drug wears off the open vessels bleed, not because of any fault of the adrenalin, but because they were not secured. In minute amounts the anesthesia is greatly enhanced, parenchymatous oozing entirely checked, but all vessels of any importance still bleed and may be ligated as usual. The solution used by the author for Schleich's infiltrations contains one-tenth per cent. cocaine with two to five drops of adrenalin chlorid one to one-thousand to each one hundred cubic centimeters.

Among the asinine regulations in regard to consumption, the latest is the Altoona, Pa., ordinance, forbidding barbers to shave consumptives.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

1. What are the therapeutic uses of alcohol?
2. How may cancer of the stomach and ulcer of the stomach be differentiated?
3. Mention the physiologic effects of bryonia. What is the dose of tincture of bryonia?
4. State the etiology and prophylaxis of biliary calculi.
5. Give indications for the internal use of bichlorid of mercury. State the dose of bichlorid of mercury for internal use.
6. State the dose of (*a*) aconitin, (*b*) picrotoxin.
7. Mention the therapeutic uses of croton-oil. What conditions contraindicate its internal administration?
8. Write a prescription containing a sedative and an expectorant, for a bronchial cough in a three-year-old child.
9. What are the principal therapeutic uses of the salts of lead?
10. Define *coccygodynia.* Give its symptoms and treatment.
11. Mention the symptoms of poisoning by phosphorus.
12. What is *chronic hydrocephalus?* Mention the varieties.
13. Explain the constipating action of opium.
14. Give the etiology and treatment of anthrax.
15. Give the composition and state the uses of lotio hydrargyri flava.

MISCELLANY

According to the Daily Mail of London, the special hospital for the treatment of ringworms, which the Metropolitan Asylums Board built at a cost of 200,000 pounds, remained empty until a few days ago, when the record was broken by the admission of a child from Mile End Road.

In Paris they are Purifying the Waters of the Seine by electricity. Air is ozonized between two rapidly revolving electric cylinders, and is then mixed with the impure water, thus quickly oxidizing all organic matter. It is said that the water comes away more sparkling and purer than that from a mountain spring.

The Imperial Russian Minister of Finance has just offered a prize of 50,000 rubles to the person or persons who will invent some way of making alcohol undrinkable. Pamphlets giving the exact requirements governing the competition have been printed in the French language and sent to the Russian consulates in foreign countries.

According to Journal Med. de Bruxelles, for February, 1904, the Lying-in Infirmary at St. Petersburg, Russia, has been equipped with a hand-organ, which is started whenever a patient feels the onset of the pains. The accouchement is thus rendered much less painful—to the assistants.

It is estimated that there are more than 6,000 physicians in London alone, and the total for Great Britain and Ireland comes to 37,730. The doctors increase at the rate of about 400 per annum. Great as this increase is, it was more than double that amount some years ago, before the course of study was lengthened from four years to five.

Sommer (*Berl. Kl. Woch.*) **Describes and Illustrates an Apparatus** that he has invented, by which the sphygmograph index works on a small, primitive wind instrument, emitting a constant musical note. The variations in the pulse rate raise or lower the note, and with a corresponding tempo. By this acoustic method it is possible to detect and study irregularities in the rhythm better, perhaps, than by the other methods in vogue.

The Keeper of the Dog Pound in Chicago reports an active demand for dead dogs for their oil. This, he says, is a specific in consumption. And proposes that the city shall go into the manufacturing business, as the demand is large and increasing. This report agrees with other authorities, who have contended that the value of cod-liver oil depended largely on the proportion of dog oil and other cheap diluents that it contained.

The University of Cambridge has recently announced that it will grant to applicants who have fulfilled the stipulated conditions regarding time of study, and who pass successfully an examination, a diploma testifying to knowledge and skill in tropical medicine and hygiene. The examination will have reference to the nature, incidence, prevention, and treatment of the epidemic and other diseases prevalent in tropical countries.

The Latest Cure for Appendicitis, as announced by cable from Berlin, is for the patient to walk on all fours for twenty minutes, four times a day. The theory on which this treatment is based is that certain muscles around the vermiform appendix are brought into play and strengthened by this quadrupedal cure, which are unused when a biped walks erect. Others are relaxed, and the localized inflammation has opportunity to subside.

Mr. Arbuthnot Lane, Surgeon to Guy's Hospital, is strongly opposed to the usual operation for the removal of adenoids. He maintains that equally good results can be obtained by making the child do proper breathing exercises, and that when once a free current of air is established through the naso-pharynx the growths speedily become reduced in size and eventually disappear. In his opinion, the operation is not free from risk, as many children take the anesthetic badly, and the hemorrhage is often considerable.

According to the Boersen Courier, a meeting was recently held in Vienna to arrange for direct service between Western Europe and Peking, China. The meeting was attended by representatives of Russian, English, French, Bulgarian, Dutch, and German railroads. It was decided to run a train de luxe from London and Paris via Berlin and Warsaw to the Chinese capital, beginning May, 1904. It is the purpose of those participating in this movement to make it possible for passengers to book in London or Paris to China without change. The trip is to be made in seventeen days.

Effertz (*Wien. Klin. Woch.*) **resides in Southern Mexico**, in one of the hottest regions on the globe. He was amazed to find the natives craved as much, if not more, fat in their food than the Eskimo, and theorizes to explain this fact. The excessive perspiration cools off the lightly clad body to such an extent that the subjective sensation of chilliness surpasses that of the Eskimo in his furs. The body, therefore, craves fats to replace the calories thus lost. He remarks that many interesting facts are yet to be learned in the tropics—not in the towns, but in the country where observers are rare.

A Belgian Savant has just published a treatise on shaking hands, which he states is most dangerous, a mutual pressure of the hands being nothing more than an exchange of undesirable microbes, 80,000 of which inhabit every half inch of the hand. The most dangerous people to shake hands with, it appears, are doctors, surgeons, nurses, hairdressers, butchers, sausage-makers, tripe-merchants, tanners and leather dressers, while the least dangerous person seems to be a worker in metal, because the metal sets up an oxidation which acts as an antiseptic. The safe course is to salute only with our heads and our hats, or always wear gloves.

The Lancet prints interesting details of the result of investigations as to the action of ether and chloroform in forcing plants to flower earlier than is natural. Dr. Johansen, of Copenhagen, noticing that many plants budded after a period of repose such as occurs in the winter months, or even in an unfavorable summer, conceived the idea that by inducing such a condition by means of anesthetics plants would be renovated, stimulated and rendered capable of developing buds with greater vigor. Experiments with lilacs, lilies of the valley and azaleas confirmed this theory. The French horticulturist Le Blanc, at Nancy, on February 19 of last year, chloroformed some azaleas and exposed them to the action of the vapor for forty-eight hours. Then he removed them to a greenhouse which was at a temperature of 65 Fahrenheit. From March 5 the flowers began to expand, and obtained their full growth on March 8, whereas the flowers which had not been chloroformed did not expand until March 21. The economy in the matter of fuel that can be effected by this method of forcing the growth of plants, etc., it is stated, will cover the cost.

SOCIOLOGIC PROBLEMS DEPENDING UPON DIMINISHING BIRTH-RATE.

BY A. L. BENEDICT, A.M., M.D., BUFFALO, N. Y.

AMPLE statistics have been collected which show that for America, as for all highly civilized countries, the birth-rate is not maintaining what has been considered its normal standard and that there is a well marked tendency for the tree of human life to die at the top. Recent investigations of college graduates in this country have shown that the average marriage of such a social grade results in a trifle over two children, and, considering the number of unmarried graduates, this class of society is not reproducing itself. On the other hand, the lower classes reproduce with an appalling fecundity, and there seems to be a general rule that recent immigrants, from whatever source and at whatever stage of history, from the Colonial period to the present, have a high birth-rate. Why is it that advancement in civilization and in individual culture and education are so closely connected with a low birth-rate? Does it indicate essential degeneration or is it purely willful? Can the standards of civilization, culture and education be maintained by growth from below? In other words, can the fecund proletariat take the place of the relatively sterile leading class, or does the quality of the latter depend upon hereditary factors that can be developed but slowly by the class which is supplanting it?

The relative sterility of a class of society may depend upon the following factors:

1. Acquired, pathologic sterility.
2. Decrease of sexual functional activity.
3. Relative or absolute congenital sterility.
4. Shortening of the average duration of married life.
5. Celibacy.
6. Voluntary prevention of conception or delivery at a viable period.

While there is altogether too much sexual incontinence prevailing in most classes of society, illegitimate children do not constitute an important factor in American society, partly because the potential parents of such children tend to become sterile by venereal disease, partly because methods of prevention of conception or abortion are practised, partly because the mortality of such children is high from what may be termed innocent neglect, as well as from infanticide and willful neglect, partly because a considerable number of bastards are born to adulterous married women or because the parents subsequently marry. Entirely in contradiction to all tradition, the writer has happened to learn of a relatively large number of cases in which the father was more anxious to marry than the mother of an illegitimate child, and, in many cases, the mother has absolutely refused to "save her honor."

There are absolutely no reliable statistics to show the exact relative influence of the various factors in producing social sterility. Acquired pathological sterility is due mainly to the sequelae of gonorrhoea, but probably also to mumps and other infections. A relatively small number of cases is due to mechanical lesions, such as laceration of the perineum with failure of vaginal retention, tipping of the uterus, and possibly stricture of the male urethra which delays ejaculation or allows the semen to remain in a dilated portion of the urethra. Acquired atresia of the female canal is seldom sufficiently absolute to cause sterility, except after surgical operation mainly for conditions themselves incompatible with conception. Gonorrhoea is variously estimated to involve 50-90 per cent. of the male population and practically all women of loose sexual life, as well as to cause 25-90 per cent. of serious gynaecologic disease of innocent married women. It certainly does not usually cause absolute sterility, either of the male or female, though it does so in a sufficient proportion of cases to reduce materially the fecundity of society at large, and it frequently happens that the progress of the disease subsequent to the first fecundation prevents further child-bearing, either directly or through necessary surgical mutilation. Syphilis does not cause physiological sterility, but does usually produce abortion or a child of feeble viability, so that it results in conservative sociologic sterility, although after several years a nearly or quite healthy child may be born. Tuberculosis and cancer do not usually produce physiologic sterility. Indeed, the former sometimes seems to heighten fecundity on the part of a woman, though this is probably an incorrect deduction, the relation of cause and effect being the reverse. Acute infections occurring during pregnancy usually lead to foetal death and abortion, but they are so purely coincidental as not to affect the birth-rate materially. Obviously, any relatively fatal disease tends to reduction of birth-rate by removing potential parents.

Decrease of sexual functional activity is a very important and often neglected cause of relative sociologic sterility. Before considering it, let us inquire what may be considered the maximum standard of fecundity. The most enthusiastic advocate of propagation could scarcely place it higher than one birth per annum per couple. About 18 per cent. of the total population consists of women between the ages of 20 and 40, so that, if every one of these were married and bore a child a year, the initial birth-rate would be 18 per cent. For the next year there would be a diminution, because the population would be increased by 18 per cent., minus the deaths among these children, while the potential mothers would be reduced by their ordinary death-rate, plus 1 per cent., which may be taken as the average inevitable mortality of child-birth, and would be increased only by a small amount by maturation of girls to womanhood. It would involve a highly complicated mathematical computation to estimate the maximum birth-rate possible, supposing the condition of a birth per annum per woman to be maintained so as to equalize the population in accordance with a practically inevitable death-rate. As a matter of experience, it may be said that a birth-rate of 3.5 per cent. is regarded as satisfactory by most sociologists, and that this corresponds approximately to about a third of the maximum fecundity. A high birth rate entails a high death-rate, because of the mortality of young children and the increased mortality of women subjected to the direct and indirect dangers of pregnancy, child-birth and lactation. If each couple bore six children, the population would increase by 50-100 per cent. in each generation, not by 300 per cent., as might at first appear, on account of the death of at least one-third of the children before reaching maturity and the necessity for compensating for the failure of reproduction by that part of the population prevented from marrying by sickness or death, vocation and inclination, physical or mental deficiency, etc.

To return to the matter of decrease of sexual functional activity, after having obtained a very approxi-

mate conception of what may be considered normal, it may be said in general that, in spite of the enormous number of ova and spermatozoa produced by the sexual glands, the fecundation of an ovum seems to depend upon chance, so far as any one intercourse is concerned, and that the fertility of a race or social class depends in part upon the frequency of sexual intercourse and the nervous and physical energy directed in this way. It is a general rule that individuals of distinction, whose activities are directed in other channels, do not raise large families. This does not necessarily apply to men whose greatness has been one of station or opportunity, but rather to those whose life has been one of continued effort in some engrossing line of thought. That the direction of energy away from sexual channels is not merely a matter of intellectuality is evinced by the American aborigines, in whose life, for some unknown reason, sexual matters did not play an important part, and who rarely had large families, while so large a number of children died that the race barely maintained its numbers from one generation to another.

Congenital sterility is mainly confined to women, and is usually seen in those of two types, the small, feminine but infantile, and the tall and rather masculine. Sometimes tapiroid cervix, undeveloped ovaries and infantile uterus or some form of atresia is found; again, no physical abnormality nor even loss of sexual instinct is present, but the woman remains sterile, without gonorrhoea or other disease or "precautions" of one kind or another being responsible. It is impossible to present accurate statistics on this point, and, in any one case, the physician may be deliberately deceived by the woman or there may be some cause in the husband, yet it is beyond question that many women who desire or, at least, are willing to have children, remain sterile without any obvious explanation either of a positive or negative nature. In some cases, the history is of intercourse with several men so that the sterility cannot be ascribed to the husband. In some instances, it seems that there is a sort of hereditary sterility, of course, in a relative sense; or, on the other hand, the relative or absolute sterility seems to be the result of excessive child-bearing in previous generations. It is very possible that the extermination of colonial American families which now seems to be threatened is really a matter of hereditary sterility, though not in the ordinary sense, and due to the excessive prolificity of past generations. However, all of the factors thus far considered probably do not amount to as much as those remaining.

It is a common belief that late marriages are a recent development in social life and this is, to a certain degree, true. At the same time, by reference to literature, we learn that immature marriages have generally been disapproved. From a study of early church records, and compiled genealogies of America, we find that the marriage of girls of fifteen to seventeen was common only for a couple of generations about the Revolution. Within recent years, there has certainly been a considerable postponement of the limit of marriageability, so that the pendulum has swung from the physiologic evils of reproduction before maturation and cessation of skeletal growth to those incident to the inception of maternity after the optimum period. While even a generation ago, the average woman was married between twenty and twenty-five if at all; at present, few of the higher social class of women are married before twenty-five, and even at thirty-five the prospects of permanent maidenhood are no greater than at twenty-five formerly. This change seems to be due largely to educational customs and to the fact that there are now so many pleasant and praiseworthy opportunities for spending leisure time, whereas our grandmothers had very little to do after leaving the elementary studies, except to engage in domestic work and social pleasures which led directly to matrimony.

It is perfectly obvious that a postponement of marriage for, say eight years, from eighteen to twenty-six, will markedly diminish the reproductiveness of a race or social class. It is scarcely necessary to qualify that the average age of marriage of women of the entire country has not been thus increased, and, perhaps, not even the so-called higher or intellectual classes have postponed marriage to this degree; yet, aside from the change of sentiment in regard to marriage before twenty, and the general disinclination of girls to sacrifice their freedom till the pleasures of maidenhood or female bachelorhood—have begun to pall, there is a very considerable proportion of marriages after thirty or thirty-five.

The postponement of marriage for a certain number of years does more than remove the time for having a certain number of children. By fostering independent habits of life in both parties to a marriage, it tends to more or less formal separation, it cuts out of married life the period of greatest passion and least forethought and, in the case of women especially, it tends to kill both the sexual and the maternal instinct by a species of dry rot of the emotions. Probably the nearest approach to Platonic friendship that the world has ever known, is to be found in married couples of modern society of certain kinds. Sometimes, too, the married state is one of equally Platonic hatred. That old-fashioned love of husband and wife and even love of children persist in the majority of instances, even in the best society, must not be forgotten, yet these elements are absent in a considerable minority of modern marriages and, when they are absent, the old-fashioned ideas of obedience on the part of the woman and of bearing children as a matter of duty, have usually also disappeared.

Celibacy, as a factor in social sterility, differs only in degree from late marriage. There no longer exists the social need of marriage as formerly. Aside from the gratification of love itself, practically every comfort of life is available to the unmarried as to the married, and the man who marries for the sake of a home and domesticity without love, is quite likely to find that his wife will insist on living in an apartment hotel and that he will go to the tailor, as before, to have his buttons sewed on. And, after all, there is no particular reason why the sentiment of home should be inseparably connected with the performance of certain kinds of manual labor that can be dispensed with by some form of co-operative domestic life. It is by no means uncommon for happily married women and men to declare that one is foolish to get married. While it is easy to detect, if not to analyze the sophistry of such remarks, it is perfectly certain that modern social life is largely influenced by a belief in the folly of marriage, and many persons, in love and contemplating marriage, fight against their inclinations as against the premonitory symptoms of a disease.

The most serious factor in social sterility is the voluntary limitation of offspring. In previous articles,

the writer has contended against the exaggerated statements that most respectable married women seek abortions, that the children of the better classes are usually accidents, that gynaecologists lend their services to producing sterility and similar denunciations. The factors previously considered, are alone competent to reduce the birth-rate of modern society below that of the pioneer period of American history, yet it is undeniably true that abortions are far too commonly sought and far too commonly produced by men of good medical and religious standing. In one instance, a class of small boys in a Sunday school were regaled by one of their number by the account of the latest difficulty in his family. His father and mother had planned a trip to Europe which had to be postponed because of the pregnancy of the latter. They had gone to the family physician, but, for some reason not clear to the boy's mind, it was too late to do an abortion and so the trip had to be abandoned and the domestic harmony was interrupted accordingly. All the principals in this little social drama were prominent in the church.

It does not seem possible that there can be any considerable amount of spaying of woman for the sake of producing sterility and the declarations by certain sociologists that such is the case ought to be withdrawn till they are supported by credible testimony. In the writer's opinion, the present tendency of gynaecologists goes too far in the opposite direction, either from moral sentiment or a belief in the value of the internal secretion of the ovary, so that too many secondary operations are necessitated by the unwillingness of the surgeon to sacrifice ovarian tissue of doubtful health.

There is no doubt but that the limitation of offspring is now due much more to the prevention of conception than to abortion. The methods of preventing conception vary widely in efficacy and in possible danger. Some involve toxic, others inflammatory, others neurotic dangers, others are practically harmless, except from the moral and sociologic standpoints. In this article, we are more interested in why than in how, conception is prevented. That it is prevented is demonstrated partly by the direct testimony—it is too frankly given to be termed confession—of many individuals who show comparatively little reserve in thus explaining their childless state, or who express themselves as contented with a "nice little family" of one to three children, but who do not intend to have any more. Indirect but equally valid evidence of the prevention of conception is afforded by the certainty which many healthy married couples plan for boarding or apartment house life or for long expeditions, which would be interfered with by pregnancy.

While, as has been stated, the high birth-rate of the eighteenth and early part of the nineteenth century as compared with that of modern colonial Americans is partly explained by natural conditions, the present relative sterility evinces a decided and widespread objection to propagate and multiply. It is useless to condemn society on broad moral grounds, as by so doing we simply drive those whom we wish to influence from the sphere of influence; on the contrary, we should earnestly seek for the reasons behind the effect and change those reasons, if possible. But, first of all, the writer would emphasize the fact that, without any evolution of opinion or change of social conditions rendering the limitation of offspring desirable; safe, convenient and efficient means for so doing, were never available in the history of the world, until the development of the rubber industry. Some one of the sixty or more plants that yield caoutchouc deserves a place on the coat of arms of nearly every decadent family.

Aside from this important factor, it is obvious that, especially in a farming community, the economic value of a child's labor up to the time of relative maturity is greater than its cost of maintenance. The same is true of various other directly productive industries, such as fishing, and many of the lighter manual industries. Even among city-dwellers, whose wants are practically limited to clothing, food and shelter, the maintenance of children imposes only a slight additional burden. Paradoxic as it may seem the persons who can afford to have children, are the very poor and the very rich and, in spite of the invectives against the latter class, it must be remembered that families in which wealth is a congenital and not an acquired condition, usually do have a fairly large birth-rate, though, of course, there are numerous exceptions in both directions.

As soon as education and social ambition come into play the necessities of life or what are commonly so considered, increase enormously, while, only in exceptional instances, can the pro rata wealth increase proportionately. Heat, shelter, food and clothing make a sudden leap in cost as soon as the primary objects of maintaining bodily temperature and nutrition are lost sight of and personal pride and vanity are manifest in the choice of a home, the setting of a table and wearing apparel. At the same time, the expense of books, transportation, amusement and self-culture begins. Not only do such items draw upon the resources available for the rearing of children, but there is an equal increase in the cost of maintenance of children, while any endeavor to secure direct benefit from the labor of children is frowned upon. It is only one step from a social grade in which the home is simple and not in a fashionable locality, in which the children work in the garden, wash dishes or even earn small wages and are content with food and clothing and the simplest amusements, to that in which the necessities of life are doubled in expense, in which wives and children are to be maintained practically in a state of idleness, and in which their expectations in the way of dress and amusement mount up by hundreds of one per cent. We may even go so far as to say that it is not that a certain stage of social development is inimical to propagation, but that the very entrance upon this stage is absolutely impossible if the expense of rearing children is included, unless the earning ability and opportunity of the head of the family is exceptional. It used to be said that it cost no more for two than for one. According to the standards of what we call good society, it costs about three times as much for a man and his wife to live together, as for either separately, in the same social grade, because society places responsibilities upon a family that it does not impose upon a single man or woman. Moreover, it is only in a few lines of professional work, that a married woman may remain a wage earner, without reproach and loss of caste, even if she might carry on an identical occupation and maintain her social status, if single. It requires no illustration to show that the additional burden of rearing children is the last straw that breaks the camel's back. Society, except in its most

elemental stage, no longer tolerates the frank performance of homely household duties, the cheap ministrations of a midwife, the semi-public lactation of children, the odor of diapers, and the noise and litter of children unless relegated to a nursery. It also demands for one child all the expense that our grandfathers incurred for a dozen. And, to be just, we must admit, that the demands of society have greatly diminished the mortality and invalidism of women, and that the mortality of childhood was atrociously high under the old regime in which domestic medicine took the place of skilled prophylaxis and treatment and the attention of parents was divided among a large number of offspring. It is a conservative estimate that the net increase of population is as great with an average birth-rate of six per couple under modern conditions, as of twelve per couple under the conditions of a century ago.

What can be done to alter the tendency to race suicide? The purely anatomic, physiologic and pathologic factors must be attacked hygienically and therapeutically. A very great improvement has already been effected in the life habits of women so that they are, on the average, far more healthy than formerly. Therapeutic measures are also more efficient. The principal evil remaining which may be considered as remediable, is gonorrhœa, and the laity already show the effects of education in that young men of the better classes report for bacteriologic examination before marriage, of their own accord, in a large proportion of instances. To stamp out gonorrhœa, or even materially to diminish its prevalence, we must make an earnest and united effort along all possible lines of prophylaxis, forgetting that the disease has any moral status.

So far as the social factors are concerned, the more one studies the problem, the less hope there seems to be. The whole trend of education, civilization and financial opportunities, is toward the concentration of population, a highly artificial subdivision of human labor and the development of tastes whose gratification can with difficulty be accomplished on any conceivable average basis of productiveness. The gist of the whole problem is that a family of children is incompatible with the neatness, order, repose and gratification of refined tastes which we are teaching the greatest possible number to desire—not that the so-called better classes are essentially unable or unwilling to have offspring. The problem cannot be solved by an appeal to altruism, because, with considerable show of reason, parents will ask how they can avoid the same sacrifices on the part of their children, which they themselves might be willing to make, if the problem would not repeat itself with added force in the next and succeeding generations. Those who are philosophically inclined will also adduce the fact that the world is within about two centuries of a state of actual overcrowding, and that, in all civilized communities, human beings are jostling one another to an uncomfortable and even unsanitary degree.

By rigid discipline, some form of socialistic co-operation and artificial safeguards as to water supply, sewage disposal, reservation of parks, irrigation of waste land, etc., the density of population may be increased to a considerable degree without reaching such a condition as prevails in China, for example. Yet, the descendants of a race that have enjoyed elbow-room and that have migrated whenever their quarters became cramped, do not relish so economic a use of the earth.

The perpetrators of race suicide have all the sophistries of the individual who contemplates suicide because he cannot live as he would choose and who claims the right to remove himself quietly and decently from society. In addition, there is a great moral difference between taking life and declining to bring it into being.

The argument that the world requires descendants of the so-called better classes, is easily met by absolute historic and genealogic evidence, at least, so far as America is concerned. As stated, really great men and women seldom perpetuate their family and the so-called lower classes develop to fill the highest social, political and business, even scientific and artistic circles in a few generations. We cannot appeal to race pride in America at this day, for we have committed ourselves squarely to the ideal of a nation but not a race, and the colonial American are already hopelessly in the minority. While there is urgent need of amalgamating the heterogeneous population of the United States, we have learned that Americanization does not necessarily depend upon actual mixture of blood, nor patriotism upon ancestry, and, from experience, we have grown sceptic of the existence of any genuine differences of character of mentality among the various Aryan races.

There seems to be no argument which can be directed toward the racial suicide, in behalf of personal or sociologic interests, which he can not meet. Perhaps his arguments are sophistry but they sound well. Our only weapon that he cannot parry, is an absolute, theologic dogma, and from this he can run. "Propagate and multiply" is the succinct command of the Bible and nothing is said as to the responsibility of the individual in weighing the practical wisdom of this command any more than in deciding whether a person already endowed with life is a detriment to human society or not. Unfortunately, the two branches of the Judaic religion encountered among us, prevail among a people which is essentially religious; that is to say, neither Jews nor Christians make their religion an inseparable part of their daily life, as do many heathen, and, whether we have to deal with those who are frankly irreligious, who are merely nominally religious or who are active in their professions of religion, it is only occasionally that we find a person who can be reached, against his preference and worldly judgment, by the biblical command. A purely mathematic element still further interferes with the solution of the problem. If each married pair were a unit so far as reproduction is concerned, many more children would be born than under existing circumstances, under which either party to a marriage may insist upon preventing conception. For example, if we imagine popular opinion to be evenly divided on this matter and the couple to act as a unit, two out of every four marriages will be fertile, barring pathologic and anomalous conditions. But, as this subject rarely is considered before marriage or, at least, not till the marriage is agreed upon, the law of chance assorts the individuals, so that one couple desire children, another are opposed to reproduction, while in the remaining two couples, reproduction is vetoed by one party of each. Thus, a fifty per cent. division of opinion with regard to reproduction represents an average of only twenty-five per cent. of fertility, barring on the one hand, accidents in the methods of prevention adopted and in the other pathologic conditions which always

operate to reduce fecundity. It must also be borne in mind that while fifty per cent. of individuals probably do not, even in the "better classes" marry with the cold-blooded determination not to have children, dread of a subsequent pregnancy and obvious economic factors, including a very laudable ambition for children already born, very generally tend to subsequent limitation of offspring.

SYPHILIS IN ITS RELATION TO MARRIAGE.

BY M. SHELLENBERG, M.D.

CONTINUING my paper on syphilis, I would state that the fifth condition which Fournier states as essential to be fulfilled before marriage is a sufficient specific treatment. This is the great condition par excellence; for, after all, in the problem which we are studying reverts to this question: in a syphilitic patient aspiring to marriage, is he sufficiently well cured of his diathesis to be no longer dangerous? From this point of view the question of the admissibility to marriage, of a syphilitic subject is almost equivalent to the cure of his disease; according to all evidence, specific treatment constitutes the best safeguard and the surest guarantee against the personal risks which affect the husband. To be convinced of this, it suffices to compare, in an advanced stage cases of syphilis treated and cases of syphilis not treated. Exception made of certain cases which baffle all our therapeutic efforts, one may say that a syphilis treated with method, energy, and perseverance should not have a tertiary period. Beyond a variable number of initial crops, treated syphilis produces nothing more; it becomes and remains quiet, and the patient, henceforth exempt from accidents, seems to have been restored to the ordinary conditions of health, while syphilis treated insufficiently, or not at all, terminates constantly, in grave tertiary lesions. The tertiary period is the time of maturity, when the indifferent, negligent syphilitic pays his accumulated debt to the disease, and "the pox is a pitiless creditor, and grants grace to no one;" while specific treatment diminishes and suppresses the chances of contagion in marriage. In effect, a large majority, if not all, patients submitted to specific treatment very quickly acquire an immunity. Look at what takes place in every day practice. A patient comes in the full secondary stage, and we subject him to treatment. What is the result, as a rule? In the first place the patient remains subject during the course of the first few months, sometimes even during the first year, to secondary crops, more or less numerous, more or less intense, according to the quality of the diathesis, but, generally, they are lessened and rendered milder by the treatment. Then, afterward, from about the second year, the crops commence decreasing; they are limited to a few isolated and benign manifestations—for example, to certain buccal erosions. Then, again, later on, the calm becomes more pronounced; it becomes complete with the third, or, later, with the fourth year. After that time it is all over with the secondary period; and with it are finished those contagious accidents which it comprises, and which constitute the principal danger relative to marriage.

Specific treatment also diminishes and suppresses the hereditary risks of syphilis; this is abundantly proved in the case of paternal hereditary syphilis. A healthy woman aborts many times in succession without cause and without explanation. We become uneasy; we search for the wherefore of these successive abortions, and we find no other possible explanation than the syphilis of the husband. Empirically, the husband is then submitted to a severe specific treatment. New pregnancies occur, and these terminate altogether favorably—that is to say, they produce at full term healthy children. Now, this favorable effect of treatment is evident upon the mixed parental heredity.

For syphilitic parents to procreate healthy children it is necessary to destroy the diathesis. It may happen that the offspring of syphilitic parents may be born healthy, while their parents are still under the impress of the diathesis, which is proved by the appearance of specific accidents upon them subsequent to the birth of their children.

This is incontestable, at least, so far as relates to the father. For a child to be born healthy of syphilitic parents, it is sufficient that these parents are subjected to mercurial influence at the time of its procreation. However singular, however paradoxical, and, above all however inexplicable, such a fact may at first glance appear, it would seem to be evident from a certain number of well-authenticated cases. Such is, for instance, a case mentioned by Turhmann and which is briefly as follows: "A syphilitic first of all has seven pregnancies, during which she is not treated. Seven times she gives birth to syphilitic children, which soon die. Becoming pregnant an eighth and a ninth time, she is treated during the course of these two pregnancies, and each time she is delivered of a sound, healthy infant. A tenth pregnancy ensues; this time the patient is not treated. She is delivered of a syphilitic child, which dies at six months. Finally, an eleventh pregnancy, in the course of which treatment is resorted to, results in a healthy infant. Had this case been fabricated out and out, imagined theoretically to meet a necessity, it could not, in truth, have been more convincing."

A thorough prolonged treatment is the essential condition to be fulfilled by every syphilitic subject aspiring to marriage. This treatment must be sufficient to confer a complete immunity from the multiple and diverse dangers which syphilis carries with it in marriage. In order that a syphilitic patient may have the moral right to become husband, father, and support of a family, it is indispensable, that he shall, by virtue of a treatment sufficiently protective, have ceased to be dangerous to his wife, his children, and himself. Now the problem arises as to this treatment, "sufficiently protective," to which syphilographers are constantly referring.

Here is the standard set by Fournier: A treatment which is based upon the administration of the two great remedies "the specifics for the pox," viz.: mercury and iodide of potassium. 2. A treatment which is based upon the administration of these two remedies in doses veritably active and curative, very different from the insufficient, timid, indifferent, almost inert, doses in which, according to traditional routine, they are most often prescribed. 3. A treatment which is prescribed and regulated according to a certain method, which has for its aim and result to conserve for these remedies, notwithstanding their prolonged administration, their primitive intensity of action (called the system of intermittent or successive treatments). 4. A treatment which, in these conditions, is vigorously pursued during several consecutive

years—at the minimum, three or four years.

The law is absolute: A chronic disease requires chronic treatment; very long should be the medication, if we are not content alone with a present effect; if we desire to obtain a complete, thorough, permanent cure.

According to experience, it is absolutely false that one has "finished with the pox" after a treatment of some months, of one year, of two years even; yet this is the extreme limit which is scarcely surpassed in routine practice. Treatment of this kind furnishes nothing more than a provisional immunity, a temporary silence of the disease, leaving the diathesis in full force, with all its future dangers, with the certain imminence of tertiary accidents at a subsequent period. Condemn these curtailed medications; approach syphilis as we do other constitutional diseases, such as scrofula, gout, tuberculosis, which are curable only by a long-protracted treatment, only by a series of successive cures, only by the repeated intervention of appropriate remedies. Never should the duration of an anti-syphilitic treatment fall below three or four years, with whatever form of the disease we may have to do, however benignly the diathesis may have been originally announced. Three or four years methodically devoted to an energetic medication, such, in my opinion, is the necessary minimum, I will not say to cure the disease, but to avert its dangerous manifestations both for the present and for the future. Again, it is prudent that, after this term, the patient submit himself from time to time—every two or three years, for example, to a new iodide treatment, so as to keep the diathesis incessantly in check, and to hold the ground gained. Combined with time, the specific treatment of the diathesis constitutes certainly the best guarantee in favor of the syphilitic subject anxious to marry.

Syphilographers often meet the following strange phenomenon: A woman may present herself holding in her arms a child covered with the eruption of syphilis and presenting in its mouth a number of mucous patches; while the mother who nurses this child is absolutely healthy, the most minute and careful examinations failing to show any symptom which enables one even to suspect syphilis. Repeated examinations after prolonged observation always end in a negative result; this mother nurses her child, her breast is constantly in contact with the mouth of the little syphilitic; and yet, no contagion is produced. A young woman marries a man unquestionably syphilitic; she is confined, the child is covered with mucous patches upon the genital organs and in the mouth. Yet we find her absolutely healthy, continuing to nurse her child, and during all this time, notwithstanding frequent and careful examinations, there were no syphilitic symptoms in the mother. Here is a syphilitic child, the offspring of a syphilitic father, nursed by the mother, and the latter remains healthy. If such cases were exceptional, we might be inclined to doubt the fact or to suppose some special immunity existed in the mother; but, on the contrary, they are often met with. We are not dealing with an exception, but with a fixed fact, so incontestably fixed, indeed, that it is called a law—"the law of Colles"—which may be formulated as follows: "A mother nursing a syphilitic child, the offspring of a syphilitic father, never contracts syphilis"; or, "a child procreated by a syphilitic father never gives syphilis to the mother." This law was called the law of Colles, he having been the first to formulate it. He was the author of a work published in 1837, "Observations Upon Venereal Diseases." It is probable, however, that Colles did not understand the precise meaning of this law, and it was a French physician, Beaumetz, who in 1840 explained it more clearly, and Fournier considered it only right to call it "the law of Colles-Beaumetz." The explanation of this law is not difficult; it is not necessary to look long and to bother our brains to arrive at the solution. There exists, indeed, a fact absolutely certain and proven, both clinically and experimentally, that in order to escape all danger of syphilis there is only one infallible guarantee, *which is to have it already.* You will never see a syphilitic contract syphilis, and, on the other hand, you may inoculate a syphilitic with the pus of mucous patches or of a chancre without causing syphilis. Fournier, like many others, has tried this, but it was time lost, and never obtained the slightest result. Here is a woman having given birth to a syphilitic child, which she is nursing, and yet she does not contract the disease, because she is syphilitic! How are we to prove this statement? There is only one way of doing so, and that is by inoculating with syphilis; then the development of syphilitic symptoms is seen, in which case we may be certain that the woman was not a syphilitic, or, if nothing is produced, we are forced to admit that she is already under the influence of syphilis. This experiment was very tempting, but morality and conscience cry out against it in America. This inoculation has been done in Germany, and it is our duty to recognize the facts and to appreciate their value, as well as to inquire whether they may not furnish us with the proof we are in search of. The following is the first case reported by Kaspari: A married man, forty years old, contracted syphilis in 1872. The wife, being cognizant of the fact, abstained from all intercourse with her husband. Two years later, the husband being cured, she returned to him, became pregnant and gave birth to a syphilitic child. Kaspari hesitated, not knowing what to do. He deliberated whether he should treat the woman, and finally decided to inoculate her with pus from mucous patches. This was done with the full consent of the patient, with the result that no infection occurred. The case reported by Newmann is even more characteristic. It was that of a young woman who had given birth to a syphilitic child. The presence of syphilis in the child was unquestionable—the grandmother, who was constantly kissing her little grandchild, contracted an indurated chancre of the lip. Newmann, like Kaspari, decided to inoculate his patient, and he did this thoroughly, making not only one inoculation, but sixteen. They were made upon all parts of the body with pus from mucous patches and indurated chancres. As in Kaspari's case, there was absolutely no result, the woman remaining healthy. Newmann had the patient under observation for six months. To these cases are added three others cited by Finger, which are the exact counterpart of those already given. We here, then, have five cases which prove incontestably that the mother, under the conditions mentioned, is syphilitic; and we may deduce the following conclusion: A healthy woman having a syphilitic child by a husband having syphilis, has nothing to fear from her child, for the simple reason that she is herself a syphilitic. In what manner came this syphilis? What manner of disease is this which remains inactive, and what is the prognosis in the case?

At first we might be inclined to think that we had before us a case of hereditary syphilis, but this theory does not hold good from the fact that hereditary syphilis manifests itself by special signs and characteristic eruptions; or the syphilis has been present unperceived. This is not impossible, but such cases are quite exceptional; hence, this hypothesis is insufficient. Only one theory now remains before us, which is that the mother has become infected with syphilis while carrying the infant. This form of syphilis was entirely unknown before the work of Colles and of Beaumetz. Up to that time only the classic active syphilis, manifesting itself by exact and characteristic signs, was recognized. The idea of this peculiar form of syphilis is a triumph of modern science. Now, as to the future of this special syphilis. "Silent" in the beginning, will it remain so a long time? Our observations give a satisfactory answer to this question, at least as far as concerns a certain period. Cases have been observed in which not the slightest manifestation of syphilis occurred during a period of time varying from one to fifteen years. For example, a woman had seven miscarriages, gave birth to three syphilitic children, and remained healthy during fifteen years. In another case, almost identical, the woman gave birth to four syphilitic children and had two miscarriages, and she likewise remained in good health during fifteen years. This, then, gives a period during which the syphilis may remain silent. It is impossible to determine this of a certainty, but it is probable that this quiescence is not indefinite. Hutchinson was the first to call attention to the cases in which tertiary symptoms present themselves after a long "silent" period. The celebrated case of Charrier was that of a young woman, married to a syphilitic husband, who was confined of a syphilitic child. During six years this woman remained in excellent health and did not develop the slightest suspicious symptom; then an ovoid tumor appeared upon the forearm, which was at first hard, but afterward softened, opened, and presented all the characteristics of a gummatous ulcer. This, moreover, was the diagnosis made by all the experienced physicians who saw this patient. This appears to be a form of tardy hereditary syphilis, such as is observed in children. Either the child is born with specific symptoms—immediate or precocious syphilis—or nothing presents itself at the time of birth and the child develops without any indication of ill health, and at about the twentieth year, or even later, syphilis manifests itself in the form of tertiary symptoms. This is tardy hereditary syphilis, and the same thing may exist in the mother. She may also present a variety which can be termed precocious; a pregnant woman develops specific symptoms during the course of her pregnancy, a decapitated syphilis; the initial symptom, the chancre, is absent, but the others leave no doubt as to the true character of the malady. This, then, is precocious hereditary syphilis. The opposite variety, that with which we are at present occupied, is a tardy hereditary syphilis. This is the theory which predominates at present, and which appears to be based upon facts. Have cases been observed which might be considered as exceptions to the Colles-Beaumetz law? Yes, but only a very few, half a dozen at the most, and even some of these are not very reliable. Among the most interesting the following one was mentioned by Fournier.

"A woman who gave birth to a syphilitic child contracted a mammary chancre while nursing the infant. Personally, he had never met with such a case, but, because one has not seen a thing, one must not conclude that it does not exist. When we consider that these cases have been observed by very distinguished and experienced physicians, in whom every confidence can be placed, we must recognize their possible existence. They must, however, be considered as exceptions. Three conditions may therefore, present themselves in the mother. 1. The mother may acquire syphilitic symptoms (excepting the chancre) during the pregnancy. This is precocious hereditary syphilis. 2. The syphilis remains quiescent notwithstanding the nursing of syphilis. 3. The woman escapes infection although carrying a syphilitic child, but she remains susceptible to it, and forms an exception to the Colles-Beaumetz law. Further observations are necessary before the problem will be definitely settled either one way or the other. There are some practical points, moreover, to be borne in mind. The mother of a syphilitic child should be its only nurse, and this for two reasons. Firstly, if it is given to another woman to be nursed, she will most surely become infected. There will thus be a new victim to the disease. Secondly, the mother has absolutely nothing to fear through the act of nursing her child. She may do this without the slightest danger, since she is already syphilitic, and can no longer acquire the disease. Therefore, after you have heard the confession of the husband who may be entirely ignorant of the danger to which the nourishing of his child may subject a nurse you should enlighten him upon the subject and make him understand that it is his duty not to engage a wet-nurse. He must persuade his wife to nurse her child herself. Remember that it is the interest of all to block up, as it were, the centres of contagion, to prevent contamination, and thus to avoid as far as possible the spreading of this protean disease."

The gastric method of the administration of mercury has serious disadvantages, particularly when mercurial preparations are given in pill form; yet it is in this way that the great majority of physicians prescribe them, at the request of the patients, who ask to have a remedy that can be kept out of sight. This pill form renders the treatment much less certain, as the entire dissolution of the pill and absorption of its contents cannot be relied on, and when it does dissolve, the active substance which it contains may have a harmful effect on the digestive mucuous membrane. The two objections to pills are that their action is uncertain and that they may produce gasto-intestinal disturbance; it is at this point that the partisans of intramuscular injections have violently attacked the "pill method." In 1888 Brocq began the use of mercurial compounds in solution. I quote from his original work as follows: "In so doing I have only taken up again the therapeutic methods of the old syphilographers, who used to prescribe Van Sweiten's solution, or the biniodide of hydrargyrum, in water or in syrup. These mercurial solutions he prescribed in two manners, either in a single large dose or in small, repeated doses. In giving large doses he prescribes the total amount to be taken either once a day in the morning before the first meal, or else in two doses before the two principal meals. The first of these plans is more convenient, as it allows a patient to go about his business for the remainder of the day without having to think of the treatment; but it has the drawback of being less efficacious and

of sometimes irritating the digestive tract. When the small repeated doses are prescribed, the total daily amount of the remedy should be divided into four or six doses and given before the different meals and in the intervals between them. This latter method is the one that he prefers as it has seemed to be far more efficacious. The first drawback to any gastric method is the irritation produced in the stomach and intestines by the drug. This irritation, so common with the pill method, is much less when drugs are given dissolved and diluted in a sufficient amount of liquid; milk, particularly, also some natural alkaline waters, have been found to be excellent vehicles for this purpose. The irritative effect is almost entirely absent when the dose of an active substance is divided up into several parts. It is quite unusual for patients not to tolerate mercurial preparations when given in these small and divided doses. Some of them, it is true, complain of slight colics during the first two or three days of the treatment, but these soon cease. Some patients, even paradoxical as it may seem, find that their digestion is improved by the treatment, and that their motions are more regular; sometimes, however, constipation continues. In any case, we have in the judicious use of paregoric an excellent means of counteracting the bad effects which dissolved mercurial preparations may have on the digestive tube. Thus, in case of pain in the stomach, or diarrhœa, have the patient add to each dose of the remedy from five to twenty drops of paregoric. Some patients dislike the remedy; this dislike is almost insurmountable with some of them, and yet with certain means it can be almost always overcome. When a patient does dislike milk, the biniodide or bichloride mixed with a certain amount of this liquid loses a portion of its disagreeable taste, which can be still further masked with some aromatic, such as the essence of aniseed. For patients who do not like milk the remedy can be incorporated in a syrup aromatized to taste; in some very rare cases I have found patients absolutely refuse to take the solutions of mercurial preparations." Against this method is its inconvenience; it is sometimes impracticable either because patients can really not take their medicine several times a day, on account of their occupations or of the necessity there may be that they should not be seen taking medicine, or because they are constantly forgetting to take it at the proper hour; this is evidently a serious drawback. Supply the patient with a small bottle, with the doses marked, to carry with him, and containing the amount of solution necessary for the day's treatment; these doses can be diluted with any liquid when taken; or, he can be supplied with small tabloids containing each one dose, which have only to be put in a little water or milk to dissolve in a lapse of time varying from a few seconds to two or three minutes. It is much better to dissolve the pill in a considerable amount of liquid, in order to avoid as far as possible the irritation produced by mercurial compounds on the mucous membranes; the inconveninece of the small and frequent dose is obviated of course by giving the soluble mercurial compound in the morning in a single dose; this is possible in syphilitic patients who have a tolerant digestive tract and a mild form of the disease; but if the digestive tract is in poor order or the malady takes a serious form, every effort should be made to get the patient to take the dissolved mercurial compound in small and repeated doses, for the advantages that this method of administering mercury presents, are considerable; to begin with, in this way we know, almost as exactly as by the injection method, what is the precise dose of mercurial compound that the patient absorbs; this is a very material advantage over the method of administration by pills, frictions, or inhalations; the irritating local effect on the digestive tube is reduced to its lowest expression. Moreover the patient can carry out the entire treatment alone; it is not necessary for him to be continually seeing his physician, and he runs no risk of pain, of abscesses, or being obliged to give up his occupations momentarily, as may be the case in the injection method. It is remarkable what efficacy the internal treatment by solutions of mercurial compounds has, especially when the small, repeated dose is used; and it is to this point that we wish to draw special attention. In this way Brocq often gives twenty grammes of Van Swieten's solution in four or six doses to syphilitic patients who had been taking without appreciable result two, three or even four pills of bichloride of mercury of one centigramme each per diem; their manifestations disappear in one or two weeks under the influence of this treatment. As Van Swieten's solution contains one gramme of bichloride per litre, equivalent to one centigramme per ten grammes, it is giving only from one and a half to two centigrammes of that salt per diem, —that is to say, far less mercury than when the pills were being taken, and yet a therapeutic result infinitely superior is obtained. Brocq's long clinical experience has furnished abundant evidence that the activity of a given dose of a mercurial solution is much increased by giving it several times during the day, instead of all in a single dose. This has been my experience. Not only does the stomach tolerate the remedy better, but the therapeutic result is far superior, and almost analogous in curative effect to injections of insoluble mercurial compounds, such as calomel. During the twelve years that he has used this method there have been very few syphilitic manifestations found to resist its action; in private practice he has seen it fail only in certain cases of tertiary psoriasiform lesions of the palms of the hands and soles of the feet, and in certain more unusual cases yet of superficial syphilitic sclerosis of the mouth, particularly of the tongue. In these peculiar and very rebellious manifestations of syphilis, nothing acts so well as an injection of calomel. But in all cases of syphilis where we are dealing with destructive gummata, with tertiary ulcero-serpiginous lesions, with malignant periositis, and with other serious syphilitic affections, alone or with potassium iodide this method is excellent.

Since Brocq has one of the largest venereal services of the Paris hospitals, he has been able by using this process systematically to lessen very materially the indications and necessity for frictions and injections of mercurial compounds, both soluble and insoluble. This conclusion reached, the following percentage is practically the daily average in his wards: out of sixty patients that were constantly under treatment for syphilis, not more than ten per cent. require frictions or intramuscular injections. After having relied too exclusively on the treatment of syphilis by the digestive tract, the tendency among practitioners now is to give up too readily in favor of methods, such as frictions, which are much more irksome and difficult for the patient to employ, and the injection of soluble mer-

curial compounds, the former being always troublesome in their method of application, and the latter painful and sometimes even dangerous. Physicians must know how to give mercury by the stomach, and they should remember that remedies to act must be given in solution; it should also be understood that when dissolved their efficacy is much greater in small and frequent doses. Do not discard the gastric method in treating syphilis; like all the others, it has its indications, advantages, and usefulness; it renders immense service in private practice with patients, but it is necessary, as far as possible to give the remedies not in pills, but in solution, and in the small and frequently repeated dose.

THE TREATMENT OF BRONCHIAL ASTHMA.

BY WM. LLOYD, M.D.

THE great difficulty in asthma seems to be to expel the air from the chest, and the respiratory muscles are strained to the utmost to accomplish this end. The normal relation between inspiration and expiration is found to be reversed; sometimes the latter is two or three times as long as the former. Anatomical lesions sufficient to account for this disturbance have not been found, and the theory generally accepted is the one advanced by Cullen, Romberg and others, that it is brought about by a spasmodic contraction of the bronchial muscles. Brandau studied the relation of habitual hyperhidrosis pedum and bronchial asthma. He believes that pharyngitis, rhinitis, and tumors found in the naso-pharynx, etc., have no causative relation to bronchial asthma. In a large number of patients we find hyperhidrosis antedating the asthma, and the belief of the former causes the appearance of the asthma, as well as of the mucous membrane complications. He reports three cases in which, the hyperhidrosis pedum being checked, the asthma was cured.

Counteract, if possible, the tendency to asthmatic attacks, which arises generally from some definite lesion the result of a former inflammatory attack. Allay, and keep allayed, the asthmatic spasm; this can be accomplished by removal of the patient from the various exciting causes of the attack and also by reducing the sensibility of the pulmonary plexus. According to Hyde Salter, no less than eighty per cent. of asthma is traceable to bronchial inflammation in childhood, sequelae to whooping-cough, measles, bronchitis, or broncho-pneumonia, and in adults it is frequently found in phthisis. All these diseases give rise to swelling of the bronchial glands, the position and relation of which are too little heeded in thoracic pathology; careful study will show that it is impossible for enlargement of the subtracheal glands to take place to any large extent, without causing pressure on the vagi and their branches; rarely does the pressure become great enough to give rise to ulceration of the trachea or bronchi, though this occasionally takes place, but considerable enlargement of the bronchial glands at the root of the lung is by no means infrequent, detected by dullness in one or both interscapular or supracapular regions, while the swelling of the large glands of the anterior mediastinum may be detected by the presence of dullness over the first portion of the sternum. Here is an explanation of the fact that the preparations of iodine are singularly efficacious, both in reducing the frequency of asthmatic fits, and also in causing the absorption of lymphatic glands, if administered in sufficiently full doses, and it is probable that the last effect explains the first. A medical friend once said to Theodore Williams, "I never give up a case of asthma until I have tried ten grains of iodide of potassium three times a day." It is indeed wonderful how this salt reduces frequently the frequency of the attacks; occasionally produces iodism, though not immediately, but the evil day may generally be postponed by largely diluting the salt with water. On the other hand, some patients never derive benefit from it unless they feel the commencement of iodism. A late well-known physician who was a martyr to asthma, used to take potassium iodide until the metallic taste appeared in his mouth, which he always found was accompanied by secretion for the bronchial tubes, at once relieving the spasm. In one severe case reported by Williams, the large doses were followed in forty-eight hours by an eruption of acne over the face, then the patient, a lady, reported that she did not obtain relief until the spots appeared, and she gladly endured them to secure freedom from the asthma. The iodide of potassium generally is far more effective in doses of from eight to fifteen grains than in the smaller ones of two to five, and at the same time the larger dose does not appear to increase the risk of iodism, provided, always, that plenty of water is given at the same time.

It is frequently possible that patients take eight to ten grains two or three times a day for months, and one patient has persevered for two years, with the only drawback of an occasional rash of urticaria and a metallic taste in his mouth; but by this means he was kept entirely free from asthma. The iodide of sodium may be substituted for the iodide of potassium, but the dose is smaller (about five grains), and a combination of the two iodides is often desirable. Various mineral waters containing iodine in some form exercise a favorable effect on asthma, but are slower in their action. Such are the Woodhall and the Purton, in England, and the waters of Kreuznach, in Germany; some patients are so susceptible to the action of iodine that a few glasses of Woodhall water, which contains one-fourth of a grain of iodide of sodium in a pint, will produce symptoms of iodism.

Iodide of potassium is indicated when there is the absence of catarrh and bronchitis, the well-marked presence of the neurotic element, and the detection of dullness along the right or left edge of the first portion of the sternum, or in one or both interscapular regions, showing enlargement of the bronchial glands. Another useful medicine in reducing the predisposition to asthma is arsenic. Often with advantage it can be combined with iodides, as a tonic to the respiratory functions and to strengthen the controlling or inhibitory element of the nervous system of the lungs. Free sponging in a bath with tepid or cold water every morning, to which sea salt may with advantage be added, and a careful dietary, may do much to keep off the asthmatic attacks. The treatment of the attack itself generally resolves itself into the administration of antispasmodics, which may be classified as stimulant and sedative. Brandy and water, whisky and water—best administered warm, hot, strong coffee, spirits of ether, and inhalation of nitrite of amyl are examples of this first class, and appear to act by promoting large bronchial secretion and expectoration, but the nitrite of amyl, intended to influence the vasomotor system and to relax the arteries, has not been

so successful in my hands. The sedative antispasmodics have greater claims on our notice, as several of them, such as belladonna, stramonium, and henbane, have been indicated for use by the experiments of C. J. B. Williams as far back as 1840. This observer found in animals poisoned by those drugs that the bronchial tubes were dilated, and incapable of being excited by any stimulus, and abundant clinical evidence has proved their efficacy in reducing the asthmatic spasm, but the difficulty lies in applying them at all times to the lungs, and bringing the pulmonary plexus and bronchial muscle fully under their influence. The popular method of smoking them in cigarettes, or inhaling the smoke of deflagrating powders or pastilles, composed of the dried leaves of datura tatula, or datura stramonium, or lobelia, or belladonna, and nitrate or chlorate of potash, is useful to a certain extent, but personally I have found the effect is more certain and stronger when the medicinal agent is taken into the stomach, or injected under the skin, and although use may be made of the various fuming powders for temporary relief, reliance should chiefly be placed on medicines containing the antispasmodics; as it would seem probable that the prdoucts of combustion of a plant must differ greatly from its natural juices, and sap carefully extracted, as is now done by pharmacy, and consequently exercise a different effect on the system. The best way is to combine the stramonium, belladonna, or henbane in the form of tincture, with the iodide of potassium, to be taken through the day, and to administer a pill of extract of stramonium (gr. 1-2) or belladonna, gr. 1-3) at night during the attack. Here I have followed this prescription with success:

Extract. glycyrrhizae.....	ʒj.
Potassii iodidi .....ʒij to ʒiij.	
Tinct. stramonii.....ʒij to ʒiij.	
Syrupi scillae	ʒj.
Aquae .....ad ℥viij..	

Dose.—A tablespoonful in a wineglass of water, three times a day.

In reference to the use of the nitrite of amyl in bronchial dyspnoea Fraser describes sixty-one observations made in bronchitis, of which detailed records have been preserved. In forty-eight of them the nitrite administered succeeded in removing every vestige of rhonchus or sibilus for various periods of time. In ten these sounds were lessened in their amount, but they were not altogether silenced. In only three the effects were either extremely slight, or altogether negative. The sixty-one observations were made on twenty-five patients. Whenever rhonchi or sibili associated with any sensation of dyspnoea were removed, the previously existing dyspnoea disappeared, or became much less marked during at least the time when the rhonchi and sibili were absent or lessened, but when nitrites failed to silence or to reduce the rhonchi or sibili they also invariably failed appreciably to lessen the dyspnoea.

In a considerable number of instances nitrites succeeded in completely controlling the spasmodic contractions of the bronchial muscles for only brief periods of time, presenting a marked contrast in the duration of their beneficial effects in bronchitis to what was usually observed when they were administered in an asthmatic paroxysm. The explanation of this may be found in the circumstances that in bronchitis, as contrasted with asthma, the exciting cause of the spasm is a persisting and purely local one, which is not removed by the action of nitrites, but continues so long as the bronchial inflammation continues. In relatively few instances where the effects were practically negative, it was found that relief was experienced for a long time after the rhonchi and sibili had returned; indeed, in many of the observations, for several hours. The adminstration of a nitrite does not, therefore, require to be a very frequently repeated one; as the dry sounds, which sometimes quickly reappears, are still for a long time present only in a degree and amount which is much less than they originally possessed. It is, in most cases, unnecessary to administer the nitrite that is selected more frequently than every three or four hours. Although nitrites dilate blood vessels at the same time as they relieve the dyspnoea produced by spasm of the bronchial muscle, it has never occurred in these observations that they have increased the bronchial inflammation. Their action when they subdued or lessened the dry rales, was invariably to give relief to the patient; in some cases this relief was apparent even on the day following that in which a single dose had been administered; and, in a few instances, bronchitis was altogether cured by their almost unaided influence. Nitrite of amyl and nitrite of ethyl have not only the inconvenience of requiring alcohol to dissolve them, but also the great disadvantage of being very unstable substances, spontaneously undergoing change and deteriorating in the course of time. These inconveniences are fully recognized in the case of nitrite of ethyl, as it occurs in the spiritus aetheris nitrosi, which, however, has continued, notwithstanding, to be a favorite and widely used remedy. It is probable that the favor with which it is regarded is due not only to the action on the circulation which it shares with the other nitrites, and to its being an alcoholic preparation, but also to the previously unrecognized influence which it exerts on dyspnoea, when it is administered, as it so frequently is, in the treatment of bronchial catarrh. The power of these substances to control bronchial spasm, whether that show itself in the orthopnoea of an asthmatic paroxysm, or in the relatively slight dyspnoea of ordinary bronchitis, will probably lead to their being more largely used than they have hitherto been in the treatment of disease. Where their administration is successful in removing the auscultatory evidences of such spasm, it is difficult to imagine anything more convincing of the influence that may be exerted upon the conditions of disease by pharmacological agencies. The observer has presented to him a patient in whose thorax a continuous succession of varying sounds is being produced, and whose condition is one of distress, and sometimes of intense suffering and anxiety; within a few moments after a nitrite has been administered the conditions are entirely changed; the endless succession of noisy breath-accompaniment gives place to an almost complete silence, in which only the subdued quiet of the normal respiratory sounds is audible; and, at the same time, the distress of dyspnoea, or, it may be, the intense suffering and anxiety orthopnoea are removed.

Chloral is one of the safest and best, according to English observers, but a dose of from gr. xx to xxx should be administered at the beginning of the attack, or, if there are premonitory symptoms, before it has actually commenced; while a dose at bedtime will often enable an asthmatic to sleep through slight early morning seizures, and this medicine will, if pushed strongly, control the asthma. In one most obstinate case under my

care, it was given in twenty-grain doses every four hours for several days, and allayed the severe spasm, but induced vomiting and an attack of purpura. Another asthmatic, who can always keep his asthma at bay by hard riding during the hunting season, has taken chloral during the rest of the year in doses of gr. xx to gr. xxx during his frequent attacks, with no harm whatever, for about ten years. Chloral, has, on the whole, been highly satisfactory, and I consider it one of the most useful and least harmful of the sedative anti-spasmodics. Should the paroxysm be very severe, chloroform, or ether, or iodide of ethyl may be inhaled, while an English preparation, Martindale's capsules of chloroform (m x), and iodide of ethyl (m iij to m v), are especially adapted to the purpose, as being tolerably safe to entrust to patients. Iodide of ethyl can be inhaled up to m x, and the inhalations even repeated at the end of two hours without danger, and it quiets the asthmatic spasm and the accompanying cough. In the height of the paroxysm the patient can neither swallow nor inhale, and it is then that the hypodermatic injection of morphia (gr. 1-4), or of atropia (gr. 1-60), or of both combined, does great good, and often aborts the attack. Another channel for introducing anti-spasmodics is the rectum, and suppositories of morphia or belladonna have often succeeded in relieving the tightness of the breathing when other measures were impossible.

Even tobacco smoking gives relief in certain cases, while Trousseau was able to control his own slighter attacks completely thereby. Stimulating liniments, such as lin. terebinth, aceticum, or lin. ammoniae, to the wall of the chest, during an attack, often gives great relief to the breathing, and is well worth a trial. One old-fashioned but very effective antispasmodic has been omitted by all authorities; it is the ethereal tincture of lobelia, and it should certainly be tried, in full doses, of a drachm, and repeated every four hours while the spasm lasts. The various bromides, of potassium, ammonium, and sodium, are useful in large doses, but their influence on the pulmonary plexus is not so satisfactory as that of the iodides, though they may often be combined with these advantageously, and the addition of a drachm of the bromide of potassium to the chloral night-draught augments its sedative effect. The application of a rarefied or compressed atmosphere in bronchial asthma has been of late years gaining ground, especially on the Continent, where a number of ingenious apparatus have been contrived; in many of these the air is supplied through a mask closely fitting to the nose and mouth, from which a pipe passes into a hollow cylinder containing a certain volume of air; this is plunged into a second or larger cylinder containing water. Condensation of the air is produced by placing weights on the top of the air cylinder, and rarefaction by drawing off water from the larger cylinder. Some of these machines have two cylinders, one for rarefying, and another for condensing, which enables the patient to expire into the rarefied air, while inspiring the condensed air. These apparatus have the advantage of being portable, and in many cases, a few lessons will enable patients to make a proper use of them, but they cannot be employed in a severe attack of asthma, where the sufferer is unequal to the exertion they require, or, indeed, to any exertion. On the other hand, to place the asthmatic in a chamber and gradually to condense the atmosphere, as is done in the compressed air bath, is as pleasant as it is advantageous, and entails no exertion of any kind on the patient's part. Establishments for depressed air baths exist largely abroad, at Paris, Berlin, St. Petersburg, Stockholm, Brussels, and in many other cities, and in London there is a very good one at the Brompton Hospital. When this treatment is better known in America it will be more largely used. The Brompton apparatus for the compressed air bath consists of: "1. A circular chamber with arched roof constructed of sheet iron three-sixteenths of an inch thick, strengthened by girders and ribs of iron, having a diameter of ten feet, and a height of eight feet, and capable of containing four persons. The chamber is fitted with an inlet pipe for the supply of fresh air, and an outlet pipe for the escape of vitiated air. 2. An eight-horse steam engine for compressing air. 3. And of a central reservoir to receive the air during compression, and to regulate the current, and to act as a filtering apparatus for purifying and even for cooling it before entering the circular chamber. This last is fitted with gauges to record the pressure, with an escape valve, and an air-tight cupboard, to enable foods, medicines, or messages to be passed to the inmates of the bath. Each sitting in a compressed air bath occupies two hours, half an hour being occupied in raising the pressure gradually to nine or ten pounds (about two-thirds of an atmosphere), which pressure is maintained at the full for an hour, and the last half is taken up in reducing it to the normal pressure. The air rises in temperature during compression, and falls slightly during the reduction of pressure, but the general fault of compressed air baths is that the temperature is usually too high, and in summer this is often a real difficulty, which has to be met by cooling the air with ice before it enters the chamber. It appears to lessen the severity of the attacks, and to lengthen the intervals between them. The great relief comes from the diminution of the emphysema, as evidenced by (1) the reduction of the chest circumference, (2) by the reappearance of hepatic and cardiac dullness, (3) by greater freedom of respiration. Besides, this cough and spasm subside and there is cessation of the wheezing and sonorous rhonchus within the chest, the breathing is easy, but slow, and the pulse is stronger and tenser than before. It would appear that the compressed air and warmth, for they seem inseparable, exercise a sedative influence on the pulmonary plexus and bronchial muscle, and render them less sensitive to atmospheric and other changes after leaving the bath. Not only do the attacks become less frequent, but the respiratory capacity, as measured by the spitometer, increases, and the general condition is shown by the gain of appetite, color and weight, to be improved. A drawback to this treatment is that to insure any good, permanent result, a large number of baths must be taken (twenty-four spread over one or two months is the minimum, and it is often desirable to extend the number to fifty or sixty). Patients carried for the first few times into the air bath, have recovered sufficiently to walk to and from it, and regaining strength enough for considerable exertion." Williams uses this mode of treatment when all medical and hygienic methods have failed to reduce the asthmatic spasm, and generally the result has been favorable. I cannot agree with some authors who hold that this treatment is only useful in asthma combined with catarrh or bronchitis, as it is equally advantageous in pure neurotic asthma, where the catarrhal element was not present at all, and which was, in fact, nothing but a pure neurosis. The cases of

asthma in which the compressed air-bath is contraindicated are those in which there is distinct valvular disease of the heart, or extensive cardiac dilation, but extensive emphysema and bronchitis are not contraindications, as both affections are largely benefited by its use. Again, it should be avoided in all cases where there is evidence of either fatty change in the heart, or atheromatous degeneration of the arteries. Asthmatics, from necessity, become spare feeders, and are often very thin; frequently a heavy meat meal is followed by an attack that a restricted dietary is inevitable. To certain asthmatics certain articles are specially injurious.

The dietary formula which suits the majority of asthmatics is that which limits them to two meals, viz.: breakfast and lunch or early dinner, and restricts their food for the rest of the day to liquids, with only bread, toast, or biscuits as solids; the great principle being that the asthmatic should retire to bed with gastric digestion quite complete, and thus preclude any pressure upward against the diaphragm from flatulent accumulations. in dyspepsia, and especially where flatulency occurs immediately after meals, it is advisable to omit sugar and starch from the dietary, and to avoid potatoes, and in these cases a little alcohol in the form of whisky, or brandy and water, should be taken with lunch or dinner. Coffee is generally a suitable beverage, taken at least once a day, black, as it distinctly lessens the spasm without rendering the patient sleepless, whereas, tea, though it is a product of the same natural order of plants, acts in a different way, and often increases the neurosis. Various meat extracts, and strong beef-tea, especially when taken warm, are excellent, as they are easily assimilated, and enable the patient to get over the asthmatic attack without great prostration. It need hardly be added that all articles of food which are in themselves more or less indigestible, such as pastry, pickles, uncooked vegetables, salads, garlic and fruit, except when perfectly ripe, and we may add cheese in its various forms, and richly dressed or highly flavored dishes, are to be avoided. To many asthmatics climate is everything, and the fact of their being surrounded by an atmosphere in which they can breathe freely without fear of spasm means entire abandonment of invalid habits and a return to active life, usefulness and happiness. But all the perplexing questions of climate, the fitting one for an asthmatic is the most perplexing, and often involves a series of experiments before success is achieved; the atmosphere which suits most asthmatics is a dry one, hot or cold, as the case may be, and a locality rather devoid of trees, or at any rate, of deciduous woods. Open heathery commons, with a light, sandy or gravel soil, are generally suitable. Fir trees do not seem to affect asthmatics injuriously, and the combination of sand-soil and fir trees, such as prevails at Bournemouth, England, is usually beneficial. Soil has a great influence, and a dry, permeable soil is better than a damp, impermeable one. As a rule, clay is pernicious; some asthmatics, however, cannot live on either limestone or chalk, though sandstone and granite are rarely complained of. Though asthmatic people prefer dry air, they by no means crave for pure air, and generally thrive better in towns, especially in smoky ones, than in the country. This has been an established fact with most asthmatics, though from time to time we find exceptions. Still it is so marked a rule, that it not rarely happens that English asthmatics repairing from the country to see a London physician, lose their asthma the first night they sleep in London, and finding their enemy gone, return home without seeing the doctor at all, though unfortunately only to find the foe awaiting them on their return.

Salter claims that every case of asthma has a climate that will cure it. At the same time we have no means of judging beforehand what climate will be of benefit; although it is a generally accepted fact that the dusty, smoky and dirty air of the city is of more benefit or better than the pure air of the country. Pyridin was introduced by Germain Sée, who claimed to be very efficient, whether the disease is of cardiac origin or otherwise.

About a drachm of the drug is placed on a hot plate in a small room, the patient paying frequent visits to the room and inhaling the vapor. After two or three seances the rales disappear, the expectoration is more free, and sleep at night is once more obtained. In many cases the improvement is permanent, while in others the effect of the medicine passes off in five days In this latter class of patients the pyridin treatment is of good service, when the patient can tolerate it.

Walker, claims that the nitrites produce only temporary benefits, and calls attention to the value of hyoscyamus given in doses of 1-130 of a grain, every half hour until the spasm disappears. Usually it requires about 3 doses to bring about this result. Small or tonic doses of arsenic combined with the hyoscyamus have a good effect generally, preventing the tendency to adynamia. Euphorbia pilulifera is considered by Matheson to be useful in asthmatic affections. Masset and Sée have found that it acts on the nerve centres, exciting the respiratory and cardiac and then depressing. Dujardin-Beaumetz had had success with the drug in asthma and emphysema. In cardiac and uraemic asthma, the agent seems to have but little effect; but in purely nervous asthma, all its good properties are brought out. The burning of nitre or the smoking of nitre cigarettes is a simple plan of relieving asthma. When employed during an attack, relief is only partial; but when used just before an attack comes, it is a most efficient agent and highly extolled. A mixture of tobacco leaves with one-fourth part of stramonium will make a cigarette as useful as any of the special preparations sold for the purpose. The respirations should be deep as possible, in order that the fumes should reach all parts of the lungs. Where general scrofula, pertussis, etc., act as predisposing causes of asthma, special attention should be directed to anti-scrofulous treatment, particularly of the nose and pharynx. Operative treatment may be necessary in cases of swollen nasal mucous membrane, hypertrophied tonsils, chronic ozaena, etc. Among the remedies for asthma are paraldehyde, pyridin and nitrite of sodium of little or no value. Nitro-glycerine, cocaine and the galvanic cautery have also been beneficial in some cases; but the sovereign remedy with him appears to be the iodide of potassium administered with chloral, not less than 1 grain of each, once or twice during each attack. Lazarus also considers the pneumatic cabinet of the greatest benefit in such affections. In the discussion following the reading of this paper at the Berlin Medical Society, the general consensus of opinion seemed to be that the number of cases in which asthma was benefited by cauterizing the nasal mucous membranes on the turbinated bones, was extremely small. Schadewald believed that asthma should be treated by faradization of the trigeminal nerves, while the advocates of static electricity are loud in the praises of this agent.

GYNECOLOGICAL EXPERIENCE OF A GENERAL PRACTITIONER.

BY A. C. GRIGGS, M.D.

MARTIN has performed laparotomy upon twenty-two patients for the second time, exclusive of cases of secondary laparotomy, within ten days after the primary section; in ten of these cases the operation was for disease of the remaining ovary, in seven, for salpingitis resulting from acute gonorrhoeal infection, or from a recurrence of the trouble for which the other tube was removed. In four instances uterine fibro-myomata had developed after the first operation. It was noted at the time of the second laparotomy that even when the patient had recovered from the former one without any evidences of peritonitis, it was the rule to find the intestines adherent to the abdominal wall and to one another. For this reason, Martin always made his second incision at the side of the old cicatrix. In order to avoid the necessity of a subsequent operation, it was desirable to remove, if possible, all diseased tissues the first time. Although he met with great difficulties in secondary laparotomies, the writer lost only one patient from sepsis and two from collapse. If the old cicatrix was much stretched he thought it best to excise it entirely, in order to avoid subsequent hernia.

As a means of lessening the amount of the disease associated with the practice of prostitution, the system of legal recognition, toleration, and regulation always has proved, and always must prove, a complete failure. The average legislator in America is not wholly destitute of common sense, and the strong suspicion that in this connection, "protection does not protect," must greatly influence his judgment. Scarcely can one find in cities of a larger population the number of applicants for relief of venereal diseases that crowd the public clinics of Paris. It would be difficult to find outside of a Paris hospital one hundred beds in a line filled each with a man suffering from some disease of the testicle. The argument that syphilis is a malady largely spread by the practices of prostitution, and that by the legal regulation of the latter the extension of the former may be enormously limited, is really a syllogism with a fallacy—the fault lying not merely in what the logicians of the text books call the "undistributed middle." The truth is that syphilis, though greatly deforming the body in its serious moods, rarely destroys life; its fatal issues are fewer by far than those of pneumonia, scarlet fever, erysipelas, and dysentery. It destroys the life of the few, spares the many, and, in a very large proportion of cases, is in the end an annoying, but not a grave, affection. It often does destroy life in its victims of the second generation, but these are in a minority, and in the third it is a pathological curiosity. It is always declared by its own symptoms, never by those of any other disease, and the popular doctrines as to its etiological relations with "scrofula" and other diseases are delusions.

Indeed, it is more than probable that, as our knowledge of the ptomaines produced after bacterial invasion of the system are better understood, we shall be in position to explain the unquestioned exemption of the immense number of those once affected with syphilis from the encroachments of tuberculosis, mycosis fungoids, and other of the infectious granulomata. These are not popular doctrines; one is almost tempted to say that for that reason they are probably well founded. Prostitution is more harmful in other ways than by reason of its dissemination of syphilis. If the eradication of the latter could by any possibility work the abolition of the former, it were wiser to begin to inject a properly prepared "lymph" with a view to complete syphilization of the human family than to attempt to accomplish the same end by taking prostitution under the wing of the Legislature. There are thousands of men in the world who owe the redemption of their foul lives to an early, well-treated syphilis. It would be difficult to say as much for the other side. The glimpse we now have of the possibilities of science in the future make the promise of managing syphilis so satisfactory that we may pluck it out of the arguments in favor of legalizing prostitution. If to-day it be the chief argument, the cause of the legalizing party is hopeless, and the abolitionists have the field to themselves.

Spaeth has called attention to the danger of allowing coitus to take place too soon after a lacerated perineum has been repaired, and reports two unique cases. The patients were discharged from the hospital within a month after perineorrhaphy had been performed. In both instances intercourse occurred within two or three days after their return home, and transverse tears were caused in the posterior vaginal fornix, from which profuse haemorrhage resulted which necessitated the application of sutures. It was remarkable that the injury occurred, not in the fresh cicatrix, but in the vaginal vault, which might be explained by the fact that the posterior wall of the vagina was shortened, and thus put on the stretch in consequence of the operation. Another woman, perfectly healthy, married at the age of thirty-one, and from the first had pain during coitus. A few days after marriage she had violent pain during the act, which was followed by profuse haemorrhage. Four days later fecal matter escaped per vaginam while she was at stool. On examination the external genitalia were found to be normal. The columns of the posterior vaginal wall were torn away from their attachment, and there was a recto-vaginal fistula admitting the little finger. Hofmokl reports four cases which occurred in Vienna and Prague. In one case a powerful young man had intercourse with a widow, aet. fifty-eight, causing a tear in the vaginal fornix, with profuse haemorrhage. In the second, violent coitus in a sitting posture produced a rupture of the posterior fornix involving the peritoneum; the patient lost much blood, but recovered. The third case was that of a girl, aet. seventeen, whose lover had violent intercourse with her while she was in an exaggerated lithotomy position, causing a large tear in the right wall of the vagina. The fourth case was that of a young girl who had an undeveloped vagina, with absence of the uterus and adnexa. During a forcible and unsuccessful attempt at coitus she sustained a deep laceration of the left labium majus, which was torn away from the vaginal wall. The tear extended upward into the mons veneris and downward toward the rectum, while the finger could be introduced into the vaginal wound to the depth of two inches. Profuse parenchymatous bleeding was checked by pressure, and the patient was discharged at the end of four weeks cured, but still anaemic from the loss of blood. In Spaeth's case of recto-vaginal fistula (the sixth on record), the injury did not occur during the first coitus, but after several successful attempts had been made; it appeared to be due not to any disproportion between the introitus and the male organ, but to an abnormal thinness of the rectovaginal septum associated with a broad,

resistant perineum. He classifies the different injuries as follows: Deep tears of the hymen, with profuse haemorrhage, tears of the clitoris, of the urethra (in cases of atresia hymens), vesico-vaginal fistula, laceration of the vaginal fornix (usually the posterior or lateral), and of the septum in a duplex vagina, to which should be added injuries of the vagina from premature coitus after perineorrhaphy.

Whatever the force, or however it be applied, to the kidney the pathological condition induced by it is usually a tearing or splitting of the kidney in a line or lines radiating from the hilum, and dividing the kidney more or less completely into an upper and a lower portion. Of course, this implies a considerable bruising of the parenchyma with infiltration of blood or urine. Diffuse hemorrhage into the parenchyma, even without true bruising, is observable in every traumatic lesion of the kidney. The bleeding is only alarming when either the renal artery or its second or third bifurcations are torn. The large size of these vessels, and the high blood-pressure, give little hope of spontaneous thrombosis, though cases are recorded in which this has occurred. If the pelvis is ruptured, the urine readily infiltrates the contused cellular tissue. If the fatty capsule of the kidney is not ruptured, it becomes distended by the blood and serves to stop the hemorrhage by mechanical pressure. If the capsule is ruptured, the blood extravasates into the diaphragm to the pelvis.

A tear in the ureter would, of course, prevent the blood from passing into the bladder. In case the peritoneum covering the kidney is opened, the blood passes directly into the peritoneal cavity. This is always a serious complication, and one particularly prone to occur in children. The symptoms of contused or lacerated kidney are, shock, of severity and duration proportionate to the amount of injury, great pain in the region of the kidney, exquisite tenderness on pressure, haematuria; and, in case of extensive bleeding, the detection of the effused blood by palpitation and percussion, together with the signs of internal haemorrhage. Even in the slight cases unattended by other characteristic symptoms, the haematuria is constant. There may be the smallest mixture of blood with the urine, or pure blood may be passed per urethram in large quantities. The blood may temporarily disappear from the urine, owing to the plugging of the ureter by a thrombus. This will be denoted by renal colic. The haematuria usually lasts for one or two weeks. Of 108 cases of injury to the kidney without external wound, it was reported by Grawitz 58 recovered. Of these 58 recoveries, there was probably primary union of the laceration in 46, since all symptoms disappeared in a few weeks. In cases of great laceration and extensive bleeding, the cure occupied many months. In 17 of these 58 cases, there was suppuration following the injury; 10 of these suppurative cases recovered. The micro-organism of suppuration may penetrate to the contused tissue infiltrated with blood and urine, either through the blood itself, by the way of the urinary tract, or, possibly, from the intestinal contents. These abscesses thus formed may either rupture spontaneously or be opened, after which healing may take place, or they may refuse to close, ultimately exhausting the patient by long-continued suppuration. Of the 50 cases terminating fatally, 18 were complicated by wounds of other internal organs, leaving 32 cases in which the fatal issue could be directly traced to the kidney wounds. This gives us, for contusions and lacerations of the kidney unaccompanied by external wound, a mortality of 35.5 per cent. Fourteen of the fatal cases perished from primary hemorrhage, death coming on in from fifteen to twenty hours. On section, a large amount of effused blood was found, together with the gaping lumen of a large branch of the renal artery. Eight cases perished from either a very slow continuous hemorrhage, or secondary hemorrhage. In seven cases, the fatal issue was due to suppuration either of the kidney itself, or of the perirenal cellular tissue. In three cases, death was due to suppression of urine.

Considering, next, open wounds of the kidneys, of 50 carefully recorded cases, 15 are complicated by wounds of other internal organs. Of the remaining 35 uncomplicated open wounds of the kidney, 11 terminated fatally; giving a mortality of 31.5 per cent. The symptoms of open wounds do not differ from those previously described as characteristic of lacerations, except that urine may escape externally. Suppuration can only be prevented by most rigid antisepsis, and the time occupied in convalescence is always several weeks. Of the 11 fatal cases, 2 perished from hemorrhage, 8 from suppuration and its attending complications. It is of interest to observe, therefore, that in open, uncomplicated kidney wounds, the danger lies almost entirely in suppuration. This is to be treated by the antiseptic method, even extirpating the kidney if it is found riddled with abscess. Evacuation of pus per the urinary tract is fraught with danger to the other kidney. Finally, in all cases of kidney wound the use of the catheter is not to be commended, since it is a fertile source of infection, and is rarely of much service.

Nagel endeavors to reconcile the clinical with the anatomical diagnosis of ovarian disease, by presenting the results of his examinations of slightly affected organs which were removed by laparotomy. Referring to the common expression, "cystic degeneration," he says positively that, from his investigations, he is led to infer that there is no diseased condition which can be called slight cystic degeneration. In this he agrees with the opinion expressed by Virchow, in 1848, that it is unscientific to say that the number of normal ovisacs is increased to the number of several thousands as a result of disease. It is undoubtedly difficult to define the exact boundary between the normal and pathological. Comparing Waldeyer's classical description of the normal Graafian vesicle with the appearances seen in enlarged ovisacs, but it must be evident that the latter condition is purely physiological and cannot be regarded as true cyst-formation.

Such enlarged vesicles are very common in foetal ovaries. A mere increase in the number of ovisacs is no indication of disease of the stroma; on the contrary, such disease, if it reaches a certain degree of severity, results in actual destruction of the vesicles. With regard to the condition known as hydrops folliculi, Nagel believes that size alone is no criterion of the presence or absence of dropsy. He agrees with Sinety and Melassez, that hydrops really results in destruction of the vesicle, and never leads to the formation of a cyst; a dropsical Graafian body never attains a size larger than that which it might have reached if it had not been diseased. The author thinks that cysts of the corpus luteum are more frequent than is commonly supposed; indeed, a corpus luteum is more likely to develop into a true cyst than is an unruptured ovisac. It is erroneous, he adds, to say that the corpus luteum is the result of contrac-

tion; it is essentially the product of a hypertrophic process, which leads to the new formation of ovarian tissue. The stromal changes observed in the condition known as "interstitial oophoritis" are, says Nagel, "the substratum of chronic oophoritis." There is no actual inflammatory process; he has never been able to find any evidences of round-cell infiltration in the specimens examined by him. The hypertrophy is confined mostly to the stomach in the immediate neighborhood of the hilum, which is transformed into firm connective tissue. Smooth, muscle-fibres he has never seen. The explanation of cyst-formation in connection with chronic oophoritis is this: as the cirrhotic ovary contracts and furrows are formed on its surface, remains of the superficial "germepithelium" are included in these furrows, and by the isolation of these cell-offshoots cysts may be formed. The author's deductions are as follows: In every instance the interstitial tissue of the ovary is first affected by disease. The ovisacs retain their normal appearance for a long time, and contain healthy ova. After the stromal changes have attained a certain grade, the vesicles undergo atrophy. Peri-oophoritis, the writer adds, seems to be the most frequent cause of ovarian disease, the periphery being first affected and subsequently the deeper parts. In only a single instance did he attribute the pathological changes to a preceding acute interstitial oophoritis; the result of the acute process is a general hypertrophy and induration of the gland, so that it may reach the size of a goose-egg. In concluding he seeks to show that in the case of the patients whose ovaries he examined after their removal, the diagnosis of disease, based upon the clinical symptoms and the result of the vaginal examinations, was fully confirmed by microscopical examinations of the removed organs.

I will report a case of a young woman who has been pregnant for four months, beginning to lose blood about three weeks ago. The flow was not abundant, and did not take place in jets; on the contrary, the blood escaped in a slow and continuous manner. The patient having been examined it was found that the uterus was normal in form and volume. Several days ago this woman experienced decidedly strong contractions of the uterus, and a body was expelled, composed of small bodies of various dimensions, round or oval in shape, and attached one to the other by pedicles. In other words, a hydatiform mole. Their existence has been recognized for a long time, and though the fact that pregnant women might be taken with pains during the course of their pregnancy, followed by the expulsion of a mass of a peculiar appearance was well known, but there is no clear explanation of the occurrence. Old-time obstetricians gave any fleshy mass expelled from the uterus the name of "mole," especially when a clot had remained for a long time in the uterine cavity, and contained fibrin. These "moles" were found to present very different characters, being occasionally fibrinous clots, and sometimes fibrous bodies. The best definition would be to compare it to a bunch of white grapes or currants; examine a bunch of grapes on the vine and the greatest difference exists in the development of the component parts of each cluster; some having already reached their maturity, while others are still small, so it is in an hydatiform mole. The vesicles of which it is composed vary greatly in size, completing its resemblance to a bunch of grapes. Open one of these vesicles and it consists of an enveloping membrane, and its contents is a tissue so extremely soft that it might justly be called a liquid; in a word, it is a mucous or myxomatous mass. De Graaf considered them as unfecundated ova, a very erroneous idea, which was afterwards abandoned, and was quickly followed by the suggestion of another hypothesis. As detached vesicles were sometimes met with, it was supposed that they were nothing more than hydatis, hence the name "hydatid mole," which is still given to the hydatiform mole. But Velpeau showed that the vesicles had nothing in common with hydatids, but that they resulted from a hydropic transformation of the characteristic villi of chorion. This opinion was soon adopted by every one, and in order to give an idea of the thing itself by the name these formations were called "hydatiform moles." It was found that the membrane enveloping this body was simply the decidua, which should contain the chorin, the amnion, the amniotic fluid, the cord, and, eventually, the foetus. Cutting open the membranes, shows that they are found to be lined with vesicle grouped around the walls. At the same time, the chorion was found present, and to it were attached the pedicles of the mole; an amniotic cavity also existed, of which the amnion was intact in certain portions, and torn in others, and within this cavity the cord, and even the foetus were found; in a word, the complete contents of the normal decidua, plus the mole; at times the contents are not quite complete, some portion, either the foetus, the cord, or some other part, being absent. This is the type of the hydatiform mole.

Frequently no trace of the embryo can be found; there is no cord, and scarcely any trace of the amnion, the whole being formed of vesicles. These hydatiform moles are of various sizes; depending somewhat upon the size of the uterus, and consequently upon the duration of the pregnancy. Sometimes the later reaches the full term, and in this case the mole may be enormous. Either the foetus exists or is absent; in the first case the mole is embryonic, and in the second non-embryonic. Several varieties of the mole may occur, according to the portion of the placenta which has been subjected to the transformation resulting in the mole; the entire placenta may be destroyed by the vesicle, and sometimes only a very small portion has undergone the vesicular degeneration. In the later case there may be found not only a foetus, but even a child at term, and living, but such cases are scarce. The medico-legal side of the subject is interesting. The hydatiform mole was formed as the result of a hydropic transformaton of the chorionic villi, therefore, in order that a mole should exist, the embryo must also exist, the chorionic villi being merely the expansion of the latter. This implies that the formation of the mole is impossible without fecundation, or the intervention of the male. In former times when a woman not supposed to be pregnant expelled a mole from the uterus, it was accepted as a fact, in accordance with the theory of de Graaf, generally accepted at the time, that this woman had not been fecundated, which opinion was an absolute error. If a woman has the abdomen enlarged, every one believes her to be pregnant; she is taken with severe pains, and gives birth to an enormous mole. This mass is disposed of, and as there is no child, the woman is suspected, and is perhaps even accused of infanticide. The possibility of the presence of a mole should not be overlooked, and if, for instance, the woman states that she was delivered of something resembling a bunch of grapes, follow up the clue thus given, show the suspected mass, and the accusation is thereby refuted and the woman saved from

an unwarranted censure.

The relations existing between the mole and the decidua and the uterine walls are most interesting; we find that the decidua is sometimes torn and sometimes intact. The vesicles come into contact with the uterus, which develops regularly, except in those cases in which are seen upon the uterine surface, owing to the greater development at those points. The vesicles having come into contact with the uterine wall may not have their development arrested at this point, but may separate the muscular fibres and penetrate into the thickness of the wall itself, even, it is said, extending to the muscular tissues. This penetration may assume such proportions that the uterus at this period becomes exceedingly thin, having merely the thickness of a sheet of paper. These cases are very serious. Death is not rare, and is sometimes spontaneous. A pregnant woman dies with the symptoms of internal hemorrhage, and the autopsy may show the uterus perforated at a point where the vesicles have invaded the entire thickness of the uterine wall.

Suppose that a woman has hemorrhages; having done all that you can, determine upon more energetic intervention: introduce the hand into the uterine cavity for the purpose of removing its contents. The finger is carried around over the entire surface of the uterus, and if not forewarned and do not use the greatest precaution, you may very easily perforate the uterus and kill the woman by internal hemorrhage; always bear in mind this possibility. Then how can we recognize this condition? It develops in the following manner: About the third or fourth month the uterus enlarges more rapidly than it should in the normal state. Hemorrhages appear at the same time, which are more remarkable for their continuousness than for their abundance. These hemorrhages, though not severe, are, nevertheless, dangerous, on account of the debility which they finally occasion. Here are two important symptoms, first the more rapid development of the uterus, and afterwards the hemorrhages. It is true that this condition is strongly indicated, but its presence cannot be absolutely affirmed, because other cases may give rise to the same symptoms. For instance, twin pregnancies and hypersecretion of the amnion occasion a more rapid augmentation of the volume of the uterus, and detachment of the placenta causes hemorrhage of a similar character to that occasioned by hydatiform moles. In a case of these moles irregularities of the surface of the womb are sometimes met with, but the same thing occurs in some twin pregnancies; a certain difference exists between this condition and hypersecretion of the liquor amnii, in which the abdomen develops in a regular manner, but with regard to twin pregnancies the question always remains doubtful. In examining the woman there may be found several vesicles which have fallen into the vagina, which makes the diagnosis positive, but these cases are curiosities in medical literature. The hydatiform mole is dangerous for the mother and child, but more so for the latter, as it nearly always dies. As for the mother, she is in danger of death from hemorrhage; in other cases she succumbs after rupture of the uterus, and consequently internal hemorrhage. The statistics of cases reported give a mortality of thirteen per cent. First of all, the attention should be directed to the prevention of the hemorrhage; if this cannot be accomplished aborption should be induced, but avoid violent measures, such as curettage, for instance. Remember the weakening of the uterine walls. The least imprudence with a curette may cause rupture, and consequently death. Thorough antisepsis and an expectant plan of treatment is better than curettage in unskilful hands.

EPITHELIAL CYSTOMA OF THE CONJUNCTIVA (DERMO-EPITHELIOMA OF PARINAUD).

A paper entitled as above, by Dr. Edward L. Oatman (*Archives of Ophthalmology*, XXXIII, No. 2, 1904), is based upon a specimen secured from a single case which it was at first intended to report simply as a curiosity. The subject, however, expanded under investigation; and the writer thinks that if the observations made have been rightly interpreted, a common origin may be ascribed to many conjunctival growths now considered as distinct in their etiology and histological structures. His conclusions are summarized as follows:

The "dermo-epithelioma" of Parinaud is not a special neoplasm, but represents a transitional stage occurring in the development of most epithelial cysts of the conjunctiva.

The term "epithelioma" has long been synonymous with carcinoma, and should never be used to designate a non-malignant growth. "Epithelial cystoma of the conjunctiva" is suggested as a preferable title for these tumors.

The progressive steps in the development of epithelial cystoma are as follows:

(*A*) As a result of some inflammatory or other tissue irritant, the deep epithelium of a crypt or fold in the conjunctiva proliferates and forms cellular masses in the subconjunctival tissue. There is also an inward proliferation of the surface epithelium, irrespective of surface indentations. The latter process is probably a secondary one. In this stage the tumors resemble carcinoma, and have been reported as such.

(*B*) The central cells of an ingrowing epithelial mass undergo degeneration, thereby creating a cystic cavity containing a mucoid material. Growths in which this condition predominate have been termed "gelatinous cysts."

(*C*) The mucoid material may undergo a process of liquefaction and a serous cyst result.

(*D*) Secondary cysts are formed from the walls of the primary cyst by the outgrowth of epithelial folds and follicles, in which the original processes of cyst formation are repeated.

As observed clinically, an epithelial cystoma may present one or all of the above-described conditions.

Conjunctival growths heretofore reported as epithelioma in children, gelatinous cysts, non-malignant cylindroma, the majority of serous cysts occurring on the ball and tarsus, and some pterygium cysts, were probably in most instances, cases of epithelial cystoma.

Cysts of Krause's glands and lymphatic cysts should be carefully differentiated from epithelial cystoma.

Dr. S. J. Kopetzky, who is the anesthetist to the Harlem Hospital, combats the idea that chloroform is the best anesthetic for children. He says that cardiac failure may set in at the very beginning of the anesthesia, when the children begin to struggle. Death may occur suddenly without warning. Ether is less dangerous, but the best method of anesthetizing children is by the aid of nitrous oxide and ether. By preceding ether with nitrous oxide a less amount of ether is required, the after effects thus being diminished.

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Each new step we take in thought reconciles twenty seemingly discordant facts as expressions of one law. —Emerson.

THE ECONOMIC FUNCTIONS OF MEDICAL SOCIETIES.

THE question often arises as to how far a medical society should consider matters purely of economic interest to its members, especially when the primary reason of organization has been a scientific one. We recall an instance in which what purported to be a scientific paper turned out to be a violent attack on the management of a certain hospital. A motion to appoint a committee to investigate the charges was ruled out of order on the ground that the society was organized to discuss scientific topics only. In justice to the chairman it should be stated that he had absolutely no bias in the rights of the question at issue. After considerable argument, it was finally allowed to refer the matter to the executive board of the society, the majority of the members agreeing that a society would stultify itself to listen to a paper which could not be discussed to its logical outcome, and that it was clearly unjust, after hearing such a paper, either to place it on the minutes, and thus virtually condemn the hospital authorities without a hearing, or, on the other hand, to expunge the record of the paper and thus decide the case against its reader without even listening to opposing testimony.

In numerous instances, collecting agencies, independent telephone companies and various other business organizations have sought to reach the medical profession through their regular societies, and, usually these requests have been refused on the ground that the societies should not exceed their avowed purpose.

While, to some degree, agreeing with this view of the case, it must be remembered that the medical profession owes a duty to itself, and that it is, in general, better to extend the functions of existing organizations than to form new ones. It is to the credit of the medical profession that its absorbing interests are along scientific and humanitarian lines. We recall one association which, after ten years' existence, with an average of forty meetings a year, at each of which, from one to four papers were presented, listened to the first paper dealing with the financial welfare of the profession, and this paper was a purely general one. Our personal experience is that an organization of any considerable number of physicians for self-protection, of any form, cannot be maintained. Thus, if the profession acts unitedly in its own selfish—but proper—interests, at all, it must do so through the use of societies intended mainly for scientific discussions.

While we can readily appreciate the delicacy of problems arising in this connection, we believe that the good sense of an executive board or special committee, could readily determine whether a scheme was proper for consideration. If so decided, a special meeting could be called, so as not to encroach upon the regular meetings of the society, and to tax the time only of those interested. It is not possible to dictate even by majority vote the course to be pursued by each member, but often material advantage will be derived from a full discussion of a business topic. The matter of telephones occurs to us as one in which the medical profession is subject to frequent extortion, and a meeting to discuss the acceptance of an independent proposition, to agree upon one or another of competing systems, to secure a rating as residences instead of business offices, to gain the Chicago concession of free calls over all lines to physicians' offices —the time spent on any of these apparently trivial details is an excellent investment.

Many physicians prefer to ignore such opportunities for minor economies, but it seems to us that it is very unwise affectation for a profession with a meagre average income, to pretend an indifference to the necessity of saving expense.

Local societies might well devote an hour or two to a session as a clearing house for dead beats. If such creatures were made aware of the fact that they were listed, they would be compelled to seek medical aid as paupers, or they might possibly be spurred on to become honest and self-supporting members of society. We are too apt to regard the problem of the deadbeat purely from our own standpoint, and to forget that wholesome severity may make men of these parasites.

Probably there is no such return for five dollars as the physician receives from his dues to the American Medical Association, and yet the Association is rapidly making money. It occurs to us that the first movement to prevent the accumulation of a dangerously large surplus, should be the payment for articles published in the Journal. There are many local and special journals whose circulation is so restricted that it is impossible to compensate contributors. This fact has encouraged the publishers of several journals of wide circulation to discontinue the custom of payment for articles, which was almost universal fifteen years ago. Six thousand dol-

lars a year would be an ample appropriation to pay for the original department to the *Journal of the American Medical Association* at ordinary space rates, and this investment, by establishing a standard, would speedily result in a return to the profession of about four times the investment.

We understand it to be the policy of the American Medical Association, through its state components, to establish a system of mutual protection against malpractice suits. The cost of such protection could easily be met without increase of dues, as most such suits are of the nature of blackmail, and would not be brought at all if it were understood that a general system of self-protection existed. Under present circumstances, insurance against malpractice suits by regular companies, costs at least ten dollars a year, and the genuineness of the protection is somewhat doubtful.

A very important need of the profession is a test of the purity of preparations used by or, at least, advertised, to the medical profession. At present, the only criterion is the statement of the manufacturer, who is not disinterested, who is usually but not always honest, and who is not always competent even when his intentions are good. In the absence of a government commission, the American Medical Association might well consider the possibility of establishing a board of investigation, who should report on drugs and proprietary foods and the like, by accurate and impartial analyses.

The compilation of a medical directory, at present in private hands, is an obvious function of the national body of physicians, and this work should be extended so as to include various statistic and historic details of the personnel of the medical profession. Not only would such work be of interest purely from the historic and genealogic standpoint, but it would be of practical value in tracing the movements of itinerants and in economizing effort in investigating cases of doubtful legality.

We have only touched upon a few of the numerous details in which existing medical organizations may be of service to the profession in matters of finance and policy. The consideration of such matters must always be undertaken after careful scrutiny, preferably by a special committee, and care must always be exercised not to trespass upon individual freedom of action, and not to lend the influence of medical societies to purely speculative schemes. We believe that the good judgment and good principles of the profession may be relied upon not to exceed the bounds of good taste.

Thus, if we deny the right of the optician to practice refraction on the ground that he lacks the physiologic, therapeutic and pathologic knowledge necessary to a complete understanding of ocular conditions and their relief, we must also deny the right of the physician with only the most hazy ideas on these subjects, so far as they apply to the eye, to practice ophthalmology, except in emergencies and for trivial complaints. It may be held that modern medical instruction includes a sufficient amount of attention to ophthalmology to warrant the licensing of the physician to attend to this as to other branches of the healing act. Possibly this is true now, but it has not been in the past, and we personally question whether so natural a specialty as ophthalmology should be open to the general practitioner without special license.

Thus far, the law has taken no cognizance of specialization excepting, obviously, in weighing the value of conflicting testimony. To require special license for the practice of ophthalmology, would be an entering wedge for a similar safeguarding of patients with reference to capital operations, the treatment of the ear and various other phases of practice. We are inclined, at least for the present, to avoid the suggestion of any legislation that shall curtail the general privileges conferred by a medical license. With regard to minor troubles and. in all cases in emergency the general practitioner must be what his name implies. A simple solution for the problem of differentiating between general and special practice is not to detract from the powers of the general practitioner, but to confer additional honor upon the specialist in his particular line. The special license to practice ophthalmology—or any other specialty—should not be easily obtained nor regarded in any sense as part of the equipment of the general practitioner. It should be limited to graduates of five years' standing, and the examinations leading to it should be such as to eliminate all but experts. No announcement of one's self as an expert or specialist should be allowed without such a license, and it might even be advisable to compel the candidate for such a license actually to announce himself on his sign as a specialist.

We do not believe that the time is ripe for the institution of specialism on such a basis, unless in regard to ophthalmology, and even here it is somewhat doubtful whether we yet wish to subdivide the medical profession formally. Yet it must be seen that any attempt to secure legislative control over one specialty, must be carried out on lines that will apply later to the formal recognition of other specialties.

Nodium is an industrial metal, much lighter than aluminum, and was discovered by M. Albert Nodon. It is obtained by a new method of electrical ionization. Its color, sheen and grain are very much like those of steel. It is dense in a melted state, and conservation in the air is possible for a longer time than is the case with aluminum. As regards ductility and malleability, nodium is comparable to bronze, and its electrical conductibility is equal to that of copper weight for weight. The use of nodium for conducting wires, light and strong pieces for automobiles, torpedo boats, airships, etc., for mouldings in place of bronze, is likely to be considerable.

THE PASSING OF NEURASTHENIA.

DR. CHARLES L. DANA lately read an important paper with this title before the New York County Medical Society. Much clearer ideas of the nature and relationships of the insanities have of late years been conceived. A more careful study of mental states has emphasized the fact that while insanity is a psychosis or morbid mental state, there are a large number of such states that are not insanities, though showing a kinship to them. These non-insane psychoses are commonly classed as some form of neurasthenia, perversity, hysteria or degeneration. Dr. Dana, however, contends that a large number of these so-called neurasthenias should be classed as prodromal stages, abortive types or shadowy imitations of the great psychoses; for in these cases it is the morbid mind that dominates the situation, not a weak eye-muscle, a poor stomach, a heavy womb, uric acid, arterial sclerosis or even an exhausted motor nerve cell. The neurasthenias and the like are not often, to be sure, pure psychoses; the body considers Dr. Dana, is also at fault, but the pysche is in main control and it "gives the stamp to the syndrome, directs the prognosis and most acutely solicitates the treatment." Many neurasthenias are only a kind of understudy of some particular type of insanity, or they make the forming stage of some major psychosis—such as precocious dementia, paranoia, mania-melancholia, and phrenasthenic, toxic, exhaustion and organic psychoses,—which, perhaps, under wise direction, never fully develop.

Dr. Dana next essays to show not only that neurasthenia is often or usually a minor psychosis, but also to indicate how an individual case can often be assigned to its specific group.

Among the major psychoses above mentioned, the chronic melancholia of middle and later life is emphasized. It is a common experience to find a patient, who in the forties develops a mild melancholia or an agitative melancholy, to give a history of nervous prostration when in the twenties or a little later on sometimes, of attacks five, ten or fifteen years previous to the one which the alienist is called upon to observe; what is in youth a pure psychosis may easily be made a chronic one by the complications and degenerative changes of later life. The phrenasthenics (which term Dr. Dana prefers to "hysterics") exhibit certain dominant traits, such as: a tendency to psychical storms or explosions as in dipsomania, hysteria, or the psychictics; a tendency to psychical "tonus" or contracture, as shown in obsessions, besetments and fixed ideas; a defect of inhibition which leads the instincts and the subconscious mind-stuff to play havoc with the conduct.

Dr. Dana considers that many neurasthenic psychoses can be recognized if we remember: That neurasthenia, strictly speaking, very rarely occurs under twenty. What we see then is pseudo-neurasthenia of dementia precox, or dementia precox itself; slight attacks of recurrent melancholia or manic-depressive insanity; or some early development of a phrenasthenia, showing itself in a chronic headache, spinal irritation, hysterical seizures, fears and obsessions. Again, depressive forms of neurasthenia with mainly symptoms of exhaustion, and retardation of thought recurrence and coming on often without adequate cause or many bodily symptoms are forms of manic-depressive insanity. Neurasthenic in the syphilitic is often, not always, a precursor of paresis. The depressive and anxious types of neurasthenia occurring after forty or forty-five are usually mild forms of the melancholia of involution. Neurasthenias occurring after severe illnesses, toxaemias and shocks, show sometimes signs of the confusional psychosis. So called congenital neurasthenia or chronic hypochondria is usually a dementia precox, paranoia or phrenasthenia.

Dr. Dana considers that if we eliminate these states we will have cut out about 50 per cent. of neurasthenias; what is left is usually a local disorder. "So that if one follows it up very closely we may yet end in finding that there is no such thing as neurasthenia at all." Irritable or abnormal hearts, stomachs, legs or bowels do not connote neurasthenia, so Dr. Dana considers.

Dr. Dana regrets that he may be criticised for dealing disrespectfully with our great national malady. If one-half our neurasthenics are just of fancy bred, and the other half not neurasthenics at all, America has been deleted of one of its most distinctive and precious pathological possessions. "If no longer able to claim any disease as specially our own, or point with pride to a national and neurasthenial syndrome, there is removed, we may be told, an important stimulus to patriotism and racial solidarity!"

OPPORTUNITIES FOR MEDICAL MEN.

THE New York *Medical Record* lately (June 4) contained a very interesting series of articles advising young physicians how they could use their surplus energy during the time—ten or fifteen years or so is the average period in this city—it takes to develop and establish a good private practice.

The development of municipal health departments has made many openings for medical specialists. The New York City Health Department, a model for all municipalities to follow, gives regular employment to about 250 physicians, and opportunities for occasional medical service to many others. There are, moreover, forty police surgeons, six physicians in the Fire Department; three in the Street Cleaning; and many medical positions in the Department of Public Charities and Corrections.

There are many corporations and business houses

which demand medical service. Street railways require medical examination and attendance upon persons injured; and to give expert testimony in suits for damages. The larger manufacturing establishments—factories and the like—have regular physicians to attend employees who may be injured in the line of duty. Department stores have doctors engaged to attend customers taken ill while shopping. Physicians are also stationed at race tracks to patch up injured jockeys and other employees.

The life insurance companies are enormous employers of medical labor. Every large company, states Dr. Schroeder, has over 27,000 medical examiners in the United States alone, and nearly $5,000,000 is yearly distributed among them in salaries and medical fees. Each great railroad has a medical department with a surgeon in chief; on some roads special hospital cars are provided, with all necessary equipment for possible accidents. No doubt the necessity will soon be recognized of even more scientifically organized medical and surgical departments to guard against the danger of infection and to provide sanitary precautions in railway cars. Dr. W. W. Sanford considers, for instance, that the State should compel a railroad to furnish a special car, with a physician and a trained nurse, for the transportation of tuberculosis patients, "large numbers of whom are carried yearly to the Adirondack region in the usual sleeping car, with its plushes and draperies." Such a car has already been provided in a Western railroad.

The Army and Navy medical service is superb; medical men have to pass very rigorous examinations for this service. And besides very good pay, they are given unlimited encouragement if they show a liking for original scientific work. And all sorts of paraphernalia, much that is expensive, is sent them in order to facilitate research. The merchant service is demanding medical men more and more. The American, Red Star and Dutch lines employ exclusively American physicians; and other lines, particularly the German, recognizing the fact that by far the greatest number of their passengers are Americans, "are seriously considering the advisability of placing one or more American physicians on their steamers." So states Dr. J. F. Donnelly.

"Lodge practice" is not an inviting field. Associations assure medical treatment to their members for a trifling yearly fee. This system is now so widely extended, especially in the smaller towns, that many physicians complain bitterly of its interference with their practice. Nevertheless, as Dr. H. A. Higley states, "not only do such associations have no difficulty in obtaining physicians to fill these positions, but they are more or less constantly besieged by applicants therefor." And he expects the system to continue permanently and to extend. A "cut-rate" system such as this is certainly distasteful to physicians generally, however popular it may be with laymen bent upon economizing. However, the system brings in its revenges; for many a "lodge doctor's" patient turns in desperation for aid through regular professional channels. And no wonder, for it is not in sober reason to expect adequate attention from a man who oftentimes receives from a whole lodge but $50 a year for his services.

Yet, the ranks of physicians have in late years been recruited from the medical colleges, in spite of increased requirements for the obtaining of a degree; "with a maximum of preparation we find the medical man of to-day, in many instances, offering his services for a minimum of compensation."

Truly the fledgling physician is "up against it" in these days. A colleague in this city, with a homely manner of expression, observed, "How is a man to pull a living out of my neighborhood when there's one of us to every other house." And how, indeed, is one man in a hundred to "pull a living" out of practice, when there are annually enough patent medicines sold and bought in this country ($62,000,000's worth), to give each physician in the United States an income of $2,000 a year.

CEREBROSPINAL MENINGITIS.

THE late epidemic of this disease in New York city has educed some valuable observations. Dr. Henry Dwight Chapin, in a paper read before the New York County Medical Society, stated that the onset has been abrupt, differing thus from all other forms of meningitis. There is severe pain in the head and back of the neck. On the second or third day the typical retraction of the head will be noted. With the opisthotonos the thighs and legs, and even the hands and arms, are apt to be in a condition of more or less extreme flexion. After this characteristic beginning the affection is most irregular in its course and duration. In some cases the brain is permanently injured by the ravages of the disease (we should consider that such is frequently the case). The special senses may be affected or be permanently injured. The specific cause is the Diplococcus intracellularis, which is found upon lumbar puncture in the spinal fluid. The manner of entry is uncertain. The death rate is high. The disease has not been limited to any one locality, but it has been more virulent in some places than in others, generally in the poorer quarters. (In the district about Gouverneur Hospital the disease has been very grave, and the mortality very high.) Dr. Chapin observes that the affection seems to attack by preference those living in unhygienic surroundings, and those who systems are exhausted, especially as the result of a depressing environment.

At a very interesting symposium upon this subject in the Greater New York Medical Society, Dr. Berg emphasized the value of Kernig's sign — the contraction of the hamstring muscles of the hip; this and the discovery of the diplococcus by lumbar puncture, he considered, established the diagnosis.

It was conclusively stated by Dr. Loomis that a drug which was injected appeared later in the capillaries of the meninges; it is evident, therefore, that the injection of lysol and like therapeutic solutions is sound and rational practice. It was unanimously agreed that lumbar punctures were not harmful to the patient; that, besides establishing the diagnosis, this proceeding is followed by improvement. Dr. von Grimm suggested in desperate cases the production of an abscess in the buttocks by injection of oil of turpentine. This induced a determination of cocci and their toxins to regions remote from the meninges. This suggestion was generally approved.

HOME TREATMENT OF THE CONSUMPTIVE POOR.

IN a recent symposium in the Medical Section of the New York Academy of Medicine the work done in the clinics of the New York Health Department and of the New York Nose and Throat Hospital, in the Gouverneur and Vanderbilt Dispensaries and at Bellevue was set forth by Dr. Knopf, Dr. Barton, and others. All these stations were established (none earlier than the fall of 1903) exclusively for the purpose of treating poor consumptives and of preventing the spread of the disease among their intimates.

The treatment in these stations has for its essentials: the instruction of the patient concerning the disposition of the infective agency; and the assuring of the patient so far as is possible, the benefits of rest, sunshine and good food. The work done by the physicians and nurses in the dispensaries is supplemented by visiting nurses, who visit the patients' homes, further acquaint them with the nature of the disease and its infectious or communicable character, and explain the simple methods by which infection in the home is to be avoided. And elementary rules and advice, printed in various languages, are provided in the dispensaries and distributed by the visiting nurses, for the patients' better understanding of the situation.

In connection with the work of these institutions four propositions are worthy to be reflected upon.

1.—Consumption is pre-eminently a disease of humanity's submerged strata. This is a fact, as patent as any in the history of mankind. If any succinct demonstration of it be needed, it is abundantly supplied by Dr. Biggs' maps of the portion of New York City in which this disease is most prevalent.

2.—As pointed out by Dr. Barton, consumption is, as a rule, contracted only by those suffering from malnutrition and inanition. As detailed (yet very important ones to an appreciation of the situation) one should note the indigestible quality of the food as commonly prepared and cooked by the wives of poor workingmen, with consequent excessive fermentation and development of toxins. There is here provided ideal pabulum upon which the bacillus and its allied micro-organisms may nourish themselves and multiply. This bad cooking is, incidentally, as potent a factor as any other, in driving men to drink; and if the W. C. T. U. would take it upon themselves, in place of some one among their already multitudinous activities, to teach their sisters how to cook, there would be less occasion to blame men for becoming drunkards. The chaotic indulgence of the appetites and the exhaustion resulting from excessive sexuality among the wretchedly poor are also factors which must be considered; we must not here forget Malthus. And with regard to malnutrition, the scientific labors of the many who have investigated ingestion tuberculosis cannot be ignored. The tubercle bacillus is primarily a saprophyte, whose natural and primeval habitat is dead or decomposing substances; and its secondary or "facultative" penchant is for devitalized or degraded tissues.

3.—The observation of Flick is *apropos* that the communicability of tuberculosis depends almost entirely upon the house. And such is certainly the case when the house is dark and dirty and germ inviting, unventilated, with damp walls and horrible plumbing conditions, and with inadequate drainage. On this point the thousand odd photographs taken by the late Tenement House Commission of New York City will be extraordinarily informing.

4.—There is the observation of Osler that in ninety-eight per cent. of all cases of consumption home treatment must be depended upon. The sanatorium treatment is ideal, but for a number of obvious reasons it cannot and probably can never be utilized generally in the cure of the consumptive.

In view of such considerations as these, it is likely that the work described in this symposium wll be found epoch-making in the fight against The Great White Plague.

PHYSICIANS AT PANAMA.

COLONEL W. C. GORGAS, the chief sanitary officer in charge of the medical department at Panama, estimates that three hundred physicians will be needed to preserve the health of the workmen upon the canal. These physicians will be drawn from civilian ranks, though a number of Government surgeons will have the higher posts. Recent graduates from the hospitals will be the men selected for this work, and they will have to take care of 50,000 men. Consequently, they will have to be "husiiers," especially as no one has ever accused the Isthmian climate of being over-salubrious.

THE MOST DELICATE TEST FOR ARSENIC.

IT was observed long ago that a certain fungus, known to botanists as *penicillium brevicaule*, was a frequent and troublesome growth on the walls of damp rooms covered with paper containing arsenic. But it has only recently been discovered that this fungus, when brought into contact with substances containing arsenic, develops with great rapidity an intense odor of garlic.

Abbo, director of the Hygienic Institute at Turin, as the result of long experiment, now recommends the use of *penicillium brevicaule*, as the simplest, surest and most delicate test for arsenic. He has found it possible to establish definitely within a few hours the presence of minute quantities of arsenic in a contaminated flour, in the urine of patients treated with arsenical preparations, and even in a case of arsenic poisoning through illuminating gas. Abbo's assertions receive strong confirmation from the work of Abel and Battenburg at the Hamburg Hygienic Institute.

Even so small an amount of the deleterious metal as one-millionth of a gram can be detected in this way —a delicacy of reaction almost unparalleled. It is of great interest that the degree of refinement thus attained is dependent on the sense of smell, for by the aid of this sense even smaller proportions of certain organic substances can be made out. Thus Emil Fischer and Petzold have shown that one five-millionth of a grain of chlorphenol, or even a smaller quantity of mercaptan, can be recognized by the nose. Of course, these quantities are immensely below the weight of a chemical molecule; nevertheless, such olfactory reactions are far more delicate than ordinary optical tests.

The "arsenic-fungus" grows well on potato, and can be kept in pure culture without transplantation, over a long period. There seems to be no reason, therefore, why the test should not be frequently applied, even by the physician in private practice. That it will play an important part in legal medicine there can be no doubt. No less an authority than Professor Kobert holds the discovery of the arsenic-fungus to be one of the greatest of modern victories for forensic medicine.

DO WE EAT TOO MUCH?

ONE of the most interesting papers read before the National Academy of Sciences at its session in Washington, last April, was a description of a series of experiments recently conducted by the Sheffield Scientific School of Yale to determine if the average human being is not eating too much. Professor Russell H. Chittenden, the director of the school, who conducted the experiments and read the paper referred to, made the statement that the average healthy man eats from two to three times as much as he needs to keep him in prefect physical and mental health and vigor.

Professor Chittenden said three classes of men were experimented on—several professors at the school, including Professor Chittenden himself, several students and a squad of United States soldiers. There was a gradual reduction of meat and other proteid foods, with little if any increase in starch and other foods, in nearly all the tests. No fixed regimen was required in any case, the endeavor being to satisfy the appetite of each subject. In only one case was meat entirely eliminated from the diet. At the end of the experiments, which lasted nearly a year, and were concluded only a few days ago, the entire lot of men who had been Professor Chittenden's subjects were in the best of health. Their weight in some cases was almost exactly the same as when the experiments were begun, and in some slightly lower. Their bodily vigor was greater and their strength was much greater, partially owing to their regular physical exercise, and also, Professor Chittenden believes, to the smaller amount of food eaten.

The daily consumption of food at the close of the experiments was much less than the recognized standards, and from a third to a half as much as the average man eats. Particular care was taken that it should be thoroughly masticated.

ISOLATION OF SMALL-POX IN GERMANY.

OF all the fads now flourishing in this country, where, as in England, "the faddist is rampant," surely the anti-vaccination fad is the most purely mischievous in its effects, as well as the most absurd. Osteopathy, Christian Science, even Dowieism, may conceivably in some of their workings be now and then productive of benefit to the community or individual cases of disease. But what excepting mischief, suffering and death can possibly result from impeding the efforts of those who are unselfishly striving to "stamp out" a loathsome and malignant infection by means which the experience of a century has abundantly shown to be alike harmless and effectual? One by one the objections to the Jennerian prophylactic are vanishing before the tests of daily experiment on the most extensive scale, and still further testimony to the value of vaccination and revaccination when thoroughly carried out, is afforded in a recently published report by Dr. Bruce Low on the methods adopted in Germany for the isolation of cases of small-pox. We quote the following paragraphs from the *Practitioner* as containing the gist of the report:

"It has been asserted in England by persons who have little or no faith in the value of vaccination as a prophylactic against small-pox, that the comparative immunity of the German nation from the disease is due, not to statutory vaccination and revaccination, but

to the strict system of isolation of small-pox which is carried out in Germany. But the evidence given to me by the eminent medical men with whom I personally conferred, entirely refutes this assertion; and one and all joined in the representation that compulsory vaccination and revaccination were Germany's great protectors against small-pox.

"The description which I have given of the position of the small-pox pavilion at each of the hospitals visited in Germany, shows conclusively that there is not in that country any 'strict system of isolation of small-pox' in the sense as we in England understand it. With one or two exceptions the pavilion is shut off in no way from the rest of the hospital, and there is no limitation in the number of persons residing within the several zones around the hospital. Nor is the administration of the small-pox pavilion entirely separate from the general administration of the hospital establishment. The German nation, therefore, by the agency of compulsory vaccination and revaccination is able to dispense with separate small-pox hospitals altogether. It is not necessary there to provide for small-pox a separate site nor separate administration. Germany is in this way freed from great expense, not to speak of the suffering and the inconvenience which fall upon the English nation. But all this could not be achieved in Germany unless the law of compulsory vaccination and revaccination were thoroughly carried out."

There is some good, after all, in living where you are not under the rule of King Mob!

THE AQUILINE NOSE.

ACCORDING to Dr. Louis Robinson, the aquiline nose is not merely imposing or ornamental, but is requisite to a full development of the human voice. As to the origin of this feature, his contention is that through the night of unrecorded time during which primitive man was slowly and painfully progressing toward civilization, the voice was the only rational means of exercising influence. Oratorical ability and a sonorous voice thus became of exceeding importance to the aspiring and ambitious, and the ultimate formation of an aquiline nosed race would become the necessary result of the better assured survival of such favorably endowed individuals. Thus, says the *Popular Science News*, the long-nosed would tend to become masterful, to form, first, an aristocracy, and ultimately so to leaven a people as to insure their dominance, as was the case with the Romans. Dr. Robinson cites the North American Indian, the Moaris and the Basuto negroes, among whom are the celebrated Zulus, as instances of large-nosed, warlike and oratorical peoples. In the further support of his theory he adduces the fact that an examination of the skulls in the British Museum shows that the hollow sounding chamber in the upper jawbone, known as the antrum, is plainly of greater capacity in snubby nosed people than in the skulls of such large-nosed races as the North American Indian and the Maori. This larger development of the sounding chamber supplies a measure of the resonance afforded by the passage of a large nose, and thus, for oratorical purposes, a nose voice is better than a cheek-bone voice.

HELEN KELLER.

THIS wonderful young woman has this June received from Radcliffe College a degree equal to that of A. B. of Harvard. At seventeen months she was stricken deaf, dumb and blind. Nevertheless, she has learned to speak so as to be understood by large audiences, and, aided by loving friends, has attained an intellectual development surpassing that of most of her sisters—or her fellows, for that matter. Her essay on the drawbacks of college life, which was written early in her student career, shows extraordinary mental acumen. Here is truly an extraordinary tribute to the present-day intellectual development of the race.

DR. LEWIS S. M'MURTRY.

The new president of the American Medical Association will certainly begin his duties under most auspicious circumstances; and its members are indeed fortunate in having at their head a personality so engaging, so zealous and so lofty-minded as that of Dr. McMurtry, of Louisville.

ST. JOHN'S GUILD.

The work done by this excellent Guild in the alleviation of human suffering is tremendous; and the splendid tone which permeates this charity must surely appeal to every physician.

The Seaside Hospital was opened for patients on June 20; and the largest number of children and mothers ever received on the opening day of the hospital was admitted—110 patients in all. The Guild's visitors and workers in the tenements report a great deal of sickness in the crowded quarters of the lower east side. It is expected that the facilities of the Seaside and Floating Hospitals will be taxed to their utmost this summer. Every practitioner among the poor in New York know how many an infant life has been saved in these Floating Hospitals. There are 1,363 distributing points in Manhattan and Brooklyn, where tickets of admission can be had free for any mother with a sick child; and physicians are supplied generously upon request at No. 501 Fifth Avenue.

In surgery it is always important to beware of oft-repeated efforts. Never try too often to catheterize a distended bladder if you don't succeed soon. It is better to tap. Never try too long to reduce a strangulated hernia. It is better not to cut. Never try too often to intubate a child; if you are not very familiar with the operation it is better to tracheotomize.

BIBLIOGRAPHICAL

Diseases of the Nose and Throat.—By D. Braden Kyle, M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia; Consulting Laryngologist, Rhinologist and Otologist, St. Agnes' Hospital. Third Edition, Thoroughly Revised and Enlarged. Octavo, 669 pp., with 175 illustrations and 6 chromo-lithographic plates. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $4.00 net; sheep or half morocco, $5.00 net.

In presenting the third edition of this work the general plan of the previous editions has not been materially altered. The entire book has been carefully revised and such additions made as were rendered necessary by recent medical progress. The most important alterations and additions occur in the chapters of Keratosis, Epidemic Influenza, Gersuny's Paraffine Method for the correction of Nasal Deformities, and in the one on the X-Rays in the treatment of Carcinoma. The etiology and treatment of Hay Fever have been partially rewritten and much enlarged, as has also the operative treatment of Deformities of the Nasal Septum. In the chapter devoted to general considerations of Mucous Membranes and Hay Fever the author records the results of his experience in the chemistry of the saliva and nasal secretions in relation to diagnosis and treatment. The literature has been carefully reviewed, and a number of new illustrations added, thus bringing the work thoroughly down to date.

A System of Practical Surgery.—By Drs. E. von Bergmann, of Berlin; P. von Bruns, of Tubingen, and J. von Mikulicz, of Breslau. Edited by William T. Bull, M.D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. To be complete in five imperial octavo volumes, containing over 4,000 pages, 1,600 engravings and 110 full-page plates in colors and monochrome. Sold by subscription only. Per volume, cloth, $6.00; leather, $7.00; half morocco, $8.50 net. Volume III. just ready. 918 pp., 595 engravings, 21 plates.

The American edition of von Bergmann, von Bruns and von Mikulicz's great surgery proceeds regularly and rapidly to completion. The first volume dealt with the Head, the second with the Neck, Thorax and Spinal Column, and the third, just fresh from the press, considers the surgery of the Extremities. The arrangement of the subjects in the successive volumes is evidently planned for the purpose of facilitating consultation.

It is significant of the development of surgical knowledge and skill throughout America that the highest literary product of European surgery should be so warmly welcomed here. Even at this early date we are told the demand for the work exceeds expectations. As each country has its special conditions and preferences as to operations, the translators, themselves skilled surgeons, under the general editorship of Professor William T. Bull, of New York, have added whatever is necessary to make the work representative of American practice, so that readers may feel assured of possessing the latest and fullest surgical knowledge of the two continents. Modern progress is so rapid, and withal so solidly founded, that it behooves every surgeon, and likewise physicians who have even occasional surgery to perform, to add this library of surgical information to their shelves.

The third volume exceeds even its predecessors in wealth of engravings and colored plates.

The other volumes of the System, it is promised, will follow in rapid succession.

Railway and Other Accidents, with Relation to Injury and Disease of the Nervous System.—A book for Court Use. By Allan McLane Hamilton, M.D., F. R. S. E.; late Clinical Professor of Mental Disease in Cornell Medical College; one of the Consulting Physicians of the Manhattan State Hospitals; formerly Physician-in-Chief of the New York State Hospital for Diseases of the Nervous System and Attending Physician to the Hospital for Epileptic and Paralyzed, etc. With fifteen plates, two superimposed charts and thirty-six illustrations. New York. William Wood & Company. 1904. Pp., 351. Octavo.

This work is intended for those who may have connection with cases in court, and the author, who has had extensive experience, attempts to show just how much the accident has to do with the alleged suffering and future condition of the litigant, from an impartial standpoint. The book will be found of practical service to any one who requires knowledge upon accident cases, much better than the ordinary treatise, which takes a single view. The book is timely and well illustrated.

Progressive Medicine, Vol. II., June, 1904.—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 334 pages, 47 illustrations. Per annum, in four cloth-bound volumes, $9.00; in paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

The present issue contains four sub-divisions: Surgery, gynecology, medicine and ophthalmology. Each of these articles, which together cover the major domain of modern medicine, is from the pen of an authority especially selected for the qualities which the task pre-eminently requires—experience, trained judgment and critical acumen. The aim of the authors has not been to summarize *all* that has been written within the sphere of their respective subjects: their purpose is to give the best, the most reliable, the truly progressive contributions to modern theory and practice, and to skillfully weld this new material into the great structure of modern medicine.

The publisher has been able to reduce the price of this publication by changing the binding to paper covers, to $6 per annum, instead of $10.

Materia Medica for Nurses.—By Emily A. M. Stoney, Superintendent of the Training School for Nurses in the Carney Hospital, South Boston, Mass. 12mo, 300 pp. *Second edition, thoroughly revised.* Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $1.50 net.

This little work has proved of great service to the nursing profession, evidenced by the demand for a second edition. The statements are not only clear and definite, but the information given can be relied upon as being accurate. In making the revision for the second edition, the text shows evidence of having been

gone over with care. New drugs which have been snown to be of actual therapeutic value have been included, their preparations, uses, and doses being clearly and fully described. A valuable feature of the work is the Appendix, containing such practical matter as Poison-Emergencies, Dose-Lists, Weights and Measures, etc., as well as a Glossary of the terms used in materia medica. The book is one of the best of its kind.

A Text-Book of Mechano-Therapy (MASSAGE AND MEDICAL GYMNASTICS). For Medical Students, Trained Nurses, and Medical Gymnasts. By Axel V. Grafstrom, B. Sc., M.D., Attending Physician to the Gustavus Adolphus Orphanage, Jamestown, N. Y. *Second edition, revised, enlarged, and entirely reset.* 12mo, 200 pp., fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $1.25 net.

The second edition of this useful little work has been rewritten, reset, and very much enlarged. Two chapters have been added—one on Massage of the Eye, Ear, Nose, and Throat, and the other on Pelvic Massage. Seventeen new illustrations have also been added. The author states that his object has been to present a work that would be useful as a text-book to students, trained nurses, and medical gymnasts, and as a reference book for the general practitioner, and he appears to have accomplished his purpose. It is certainly a practical and clear consideration of the subjects of massage and medical gymnastics, and it is with pleasure that we recommend it to our readers.

Modern Ophthalmology.—A Practical Treatise on the Anatomy, Physiology, and Diseases of the Eye. By James Moores Ball, M.D., Professor of Ophthalmology in the St. Louis College of Physicians and Surgeons. With 417 Illustrations in the Text and Numerous Figures on 21 Colored Plates, nearly all Original. 820 pages, extra large royal octavo. Price, extra cloth, $7.00, net; half-morocco, $8.50, net. F. A. Davis Company, Philadelphia.

The author has attempted to produce a work which will teach, and at the same time be valuable alike to the student, to the general practitioner and the specialist, an undertaking of no mean proportions, and from a cursory examination we should say he had succeeded.

The author's experience as a teacher has led him to believe in the advisability of combining embryology, anatomy, physiology and diseases of the eye, within one volume, and for his purpose, it seems desirable. In the clinical portion congenital anomalies, tumors, inflammations and degenerations, injuries, and operations have been considered in the order mentioned as a logical sequence. Many of the illustrations are original, and have been made from the author's dissections or from sections prepared under his direction, and all are from reliable sources. The work, as a whole, is an up-to-date treatise on the subject of which it treats, and worthy a place in any medical library.

The Clinical Study of Blood-Pressure.—A Guide to the use of the Sphygmomanometer in Medical, Surgical, and Obstetrical Practice, with a Summary of the Experimental and Clinical Facts relating to the Blood-pressure in Health and in Disease. By Theodore C. Janeway, M.D., Lecturer on Medical Diagnosis, University and Bellevue Hospital Medical College, and Visiting Physician to City Hospital, New York. Seventy-five illustrations in the text, many in colors. New York, London: D. Appleton & Company, 1904. Octavo, pp., 300. Price, $3.

The subject of blood-pressure has been growing rapidly of late, but the literature was so scattered, that it was difficult for the practitioner to make use of it, and it has been the aim of the author to meet the demand for information along these lines.

The book contains a full description and illustration of every useful clinical instrument for measuring blood-pressure, with its methods of use, its particular advantages and defects, its cost and where it may be purchased. It also discusses critically all the principles involved, the sources of error and the comparison of results obtained by the different methods. In addition to this technical part there is a full consideration of the physiology and pathology of blood-pressure, so far as it has been elucidated. The later chapters deal with the clinical findings as to the state of the arterial pressure in different diseases, with its value in surgery and in obstetrics. The diagnostic, prognostic, and therapeutic indications to be obtained from a knowledge of the blood-pressure receive special attention.

The book cannot fail to be of vast interest to the surgeon as well as the general practitioner.

The Practical Medicine.—Series of Year Books Comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the general editorial charge of Gustavus P. Head, M.D. Vol. XI. General Medicine, edited by Frank Billings, M.S., M.D., Head of the Medical Department and Dean of the Faculty of Rush Medical College, Chicago, and J. H. Salisbury, M.D., Professor of Medicine, Chicago Clinical School. Chicago: The Year Book Publishers. Price, $1.00, or the series of ten, $5.50.

This is one of the most interesting and instructive volumes of the series. The subjects of typhoid fever, diseases of the stomach, intestines, peritoneum, liver and numerous other affections are discussed in the light of the literature of the period to which it refers. The enterprise is worthy the support of the profession.

Arteria Uterina Ovarica.—The Utero-Ovarian Artery or the Genital Vascular Circle, Anatomy and Physiology, with their Application in Diagnosis and Surgical Intervention. By Byron Robinson, B.S., M.D., Chicago, Ill. Author of "Practical Intestinal Surgery," "Landmarks in Gynecology," etc. Chicago: E. H. Colegrove, 1903. Pp. 182. Royal octavo, fully illustrated. Price, $1.

This monograph is the result of a vast amount of original research, extending over a period of fifteen years, and it must be accepted as the "recognized literature" of the subject. As new features are presented the utility of the genital vascular circle in surgical intervention on the tractus genitalis and this with the important arterial cervical loop as described for the first time. The illustrations from nature are painstaking, reliable and profuse. No review can do the work justice, but it is worthy the attention of the expert.

Unconscious Therapeutics; or, The Personality of the Physician.—By Alfred T. Schofield, M.D., M. R. C. S. and C., Honorary Physician to Friedenheim Hospital, Author of "The Unconscious Mind," "The Force of Mind," etc. Philadelphia: P. Blakiston's Son & Co. 12mo, pp. 317. Price, $1.50.

The literature concerning psycho-therapeutics being exceedingly meagre, a book of this class by a competent hand should be very welcome to the profession. There are two factors which largely sway men's thoughts at this time. The one is the great psychic wave, that, besides disgusting most thoughtful minds, with its extravagances and carrying away thoughtless minds with its pretensions, contains sundry deep underlying and notable truths. The other is the great advance of thought and speech transference, as seen in the telephone and in wireless telegraphy. A knowledge of unconscious therapeutics would enable us to oppose the progress of quackery with more success, and we quite agree with the author, that no medical training can be complete, that does not include this subject in its curriculum.

International Clinics.—A Quarterly of illustrated clinical lectures and especially prepared original articles on the principal subjects in medicine and surgery by leading members of the profession. Edited by A. O. J. Kelly, A.M., M.D., Vol. II., Fourteenth series, 1904. Philadelphia: J. B. Lippincott Company. Pp. 314. Price, $2.

The articles in this valuable publication are always timely, practical, of great originality, well illustrated for its purpose, and furnished at an extremely low price. Send for table of contents and see for yourself the class of articles it contains. One hundred and twenty-eight pages of this volume are devoted to diseases of warm climates—a most timely subject. No practitioner can afford to be without such publications if he wishes to keep abreast of the times.

RETROSPECTIVE THERAPEUTICS

Gelatine in Infantile Diarrhea.—Weill (*Presse Médicale*, 1903, No. 37) reports excellent results from using gelatine in infantile diarrhea. From 6 to 8 grams (1½ to 2 drachms) of gelatine daily, produced a diminution in the number of stools from 12 to 3. They were of firmer consistency, did not contain any small masses, and were of normal coloration; from green they change to yellow on the first day. The drug is useful only in simple gastroenteritis, in which the disturbance is limited to stomach and bowel, and where the children are otherwise in good health. In infections or fevers gelatine is without any action; this is especially true in infantile cholera morbus. The action is not bactericidal, as it is well known that gelatine is a splendid medium for bacteria to grow on. It has been proved by animal experiments that if gelatine and a laxative are given simultaneously, or if the latter follow the former, the intestinal action of the laxative is interfered with; if the drug precedes gelatine, the laxative action follows as usual. The author concludes from this, that gelatine neutralizes the ferments of the intestine and that its action in gastroenteritis is due to a neutralization of the toxic products produced by the disease in the intestine.

The Prevention of Sunstroke.—Dr. Andrew Duncan, joint lecturer in Tropical Medicine at the London School of Tropical Medicine (*Edinburgh Med. Journal*, March; *Jour. of Tropical Medicine*, April 1st) says: " . . . After several attacks of severe sunstroke necessitating frequent invaliding, I read one day a letter from an executive engineer in the *Pioneer* on the prevention of sunstroke. This officer had had three attacks of sunstroke. He had then come to the conclusion that the dangerous rays of the sun were not the heat rays but the chemical. His argument was based on the fact that no one ever gets heat stroke from exposure to a dark source of heat, or one where the luminous rays possess no degree of chemical energy, *e. g.*, the furnaces in an arsenal. In scientific language the actinic rays are the dangerous ones; they will pierce through anything except a ray of color, interposed to act as a filter. He therefore argued that the only way to ward off sunstroke was to treat his body as a photographer treats his plates, and develop it in red or yellow. He therefore lined his helmet and coat with yellow and after five years of extreme exposure, had no further sun attacks. Acting on this theory, I lined my helmet with orange-red flannel, had a similarly colored pad sewn into the inside of my khaki coat at the back, and wore an orange-red shirt always when on the line of march. I never again felt the effects of the sun. I would therefore strongly recommend similar measures to be undertaken by any officer who cannot stand the direct heat of the sun."

Superheated Air in Treatment of Freezing and Chilblains.—Statzer (*Wien. Klin. Rundschau*) relates that surprising success has crowned his application of superheated aid to the treatment of frozen tissues and of chilblains. He has thus treated sixteen patients. In six only a day or two had elapsed since the freezing; in six about a week, and in the others two or three months. From two to four applications were generally necessary to a maximum of ten applications of the hot-air box. The sittings were an hour each daily or half to three-quarters of an hour twice a day. The simplicity and ease of this method of treatment, its unvarying success and the short interval before the signs of inflammation subsided and clean granulations took the place of the gangrenous ulcer, far surpassed any results obtained with other methods. The discomforts of chilblains rapidly subside. The application of the hot-air box soon after a part has been frozen will restore conditions to normal and prevent the tardy lesions sometimes observed.

House Infection of Tuberculosis.—Lawrence F. Flick (*Baltimore Med. Journal*) summarizes an article on this subject, as follows:

1. Tuberculosis is a disease due to the parasitic growth of a micro-organism on the tissues of a human being or animal. Being due to organic life, it is communicable.

2. Tuberculosis is contagious. The contagion of tuberculosis is different from the contagion of acute contagious diseases, however. It is slow and can be avoided easily in the presence of a consumptive, while that of acutely contagious diseases is rapid and cannot be avoided in the presence of those who have such diseases.

3. The contagion of tuberculosis is closely connected with the house. An inclosure of some kind is necessary to make it effective.

4. The house is the granary of the tubercle bacillus. It is the place in which tuberculosis matter is kept vital until the bacillus can find a new host.

5. Out of doors tubercular matter becomes devitalized in a short time through water, light and air. Enough cannot accumulate in a vital state to create a contagious environment.

6. Everyone has some resisting power to tuberculosis.

Some have more than others. Practically all have sufficient resisting power to withstand occasional exposure to tuberculosis and exposure out of doors.

7. For an implantation of tuberculosis prolonged intimate exposure and an intensely contagious environment are necessary to overcome resisting power. This is had in the home and the workshop.

8. The house prepares soil for the tubercle bacillus.

Oxygen as Aid in Labor.—Dr. G. Lapenta, New York, has found that inhalation of oxygen is a most valuable aid in labor. It relieves the dyspnea and cyanosis and induces anesthesia to a certain degree, all the functions returning nearer to normal and the progress of delivery being advanced in consequence. In his article on the subject in the New York *Gazetta Medica* for March, of which he is the editor, he states that the results have been invariably brilliant in more than fifty cases in which he has used the oxygen as an auxiliary for the uterine forces. The labor pains were always materially reduced in intensity while the contractions of the uterus became rhythmical and more energetic. The patients afterward feel better instead of being depressed as when chloroform is used. The oxygen evidently has a favorable influence on the entire nervous system and revivifies the nerve centres, which in turn react on the muscles. The new vigor is accompanied by a slight, transient anesthesia, sufficient for the purpose desired.

Management of Natural Labors.—A leading London obstetrician, Dr. Peter Horrocks, has lately raised the usual vexed question of the technique of management in ordinary labor, says a correspondent of the *International Journal of Surgery*. Should we, relying on our antiseptic methods, assist the patient freely by digital and instrumental manipulation, or should we rather leave as much as possible to nature? Should we employ antiseptic douches in every case, or should we rather rely upon the natural cleansing power of the utero-vaginal secretions? Strict asepsis is almost impossible owing to the difficulty of sterilizing the vulva and orifice of the vagina which the fingers and instruments must traverse. On the other hand, recent research goes to show that the utero-vaginal secretions have special bactericidal powers which the introduction of antiseptics tends to annul. While, therefore, Dr. Horrock's gives full value to the marked reduction in septic complications which has resulted from the introduction into midwifery of methods of modern surgery, he advocates the abolition of the routine vaginal douche in all natural labors and the avoidance as far as possible of such digital and instrumental interference as necessitates the after use of antiseptic irrigation.

Diet in the Control of Dystocia.—The credit of promulgating a recommendation for a rational diet to endeavor to limit the development of the fetus belongs to Prochownik. He began his investigations because of the frightful mortality following induced labor in cases of contracted pelves. It suffices to say that the utterances of Prochownik are the only ones that have a scientific basis and that they were the only ones recording the observations of learned and skilled accoucheurs.

Prochownik's table follows: Breakfast—A small cup of black coffee containing not more than 3.38 ounces, and not to exceed 5 ounces of zweiback or bread and butter. Luncheon—Any kind of meat or fish, eggs, green vegetables, salad, and cheese. Dinner—Same as the luncheon, with the addition of 1 to 1¼ ounces of bread and butter. The only fluid allowed beyond this is 10 to 14 ounces of red wine. Water, soup, potatoes, starchy food, beer, and sugar are absolutely forbidden.

He has tabulated the results in 62 cases as follows:

1. All the mothers bore the diet well after slight initial hardships, principally thirst (especially in the corpulent), and repugnance to so much animal food. Both these difficulties were mitigated by increasing the allowance of green vegetables. The weight of the women, allowance being made for the growth of the embryo and uterus, remained practically the same.

2. All the confinements were relatively easy in comparison with previous labors, even in those exceptional cases in which, despite the diet, the fetus was large and fat at birth.

3. All the children were born alive, although the mothers, as a class, had experienced stillbirths. The few cases of asphyxia neonatorum were easily reanimated. As far as known, all the children survived the accidents which produce secondary mortality.

4. The great majority of the children were lean at birth, there being a notable subdevelopment of the panniculus adiposus. The skin of the head was noticeably lax, and the cranial bones exhibited a marked degree of motility one upon another.

5. The children exhibited the essential insignia of maturity (normal length, head measurements, etc.).

6. The normal gain in weight took place in the majority of children.

7. The diet of the mother exerted no unfavorable action upon lactation.

As soon as delivery is accomplished the special diet is dropped, and an effort instituted to supply food especially rich in non-nitrogenous nutriment.

The Prochownik diet is used only in the last six weeks of pregnancy, and the benefits accruing to the mother are so evident that the physician will find in her a willing patient when the facts are once explained to her. Complications are lessened; accidents so common in protracted and dystocic labors are averted; maternal suffering is minimized; the chances of the fetus are enhanced, and the time of the physician is conserved by the shortened period of labor.

Potatoes in Diabetes.—An editorial in the *British Medical Journal* reviews the communications of M. Mosse to the French Academy of Medicine, in which he goes still further in the use of potatoes in considerable quantity, as much as three pounds being allowed daily. He describes a number of cases which were placed on this diet, to show that, as compared with the equivalent quantity of bread, their use was followed by a decrease in the amount of the glycosuria, polyuria, and thirst; also marked improvement in general health. In only one case were the results unfavorable. It has been shown that diabetics can take 3,000 grains daily in the form of potatoes without eliminating more than 500 or 600 grains of glucose in the urine. Mosse ascribes the benefit of the potato diet to the alkaline salts, especially potassium, contained in the potato.

Sawyer states in the same journal that the permission of potatoes in the food of diabetics is one of the greatest dietetic advances of our times. Cooked in any of the ordinary ways, they are a grateful food, but they should be cooked by steaming with the skin on. He proposes that the bread difficulty in diabetes be met by using the "flour" of properly cooked potatoes, instead of the flour of grain.

CORRESPONDENCE

AFTER FIFTEEN YEARS—A CLASS HISTORY.

To the Editor of THE MEDICAL TIMES:

The Class of 1889 of the Medical Department of the University of Pennsylvania has recently issued a history, which reflects much credit upon the committee who had the matter in charge. The class at graduation numbered 128. Thirteen are known to be dead. Four have reported themselves as out of medical practice, four others are more or less positively known to have given up practice, and four others' names are omitted from Polk's directory, so that they are probably dead or have left the American medical profession. About one hundred are known to be engaged in active medical practice. It is commonly stated that about one-sixth of all medical graduates do not enter upon or maintain for any considerable length of time, active practice of their profession. It will be seen that, even including deaths, almost exactly four-fifths of this class are still in active professional life after fifteen years.

In running over the list of names, at least ten occur to us to have acquired a national reputation in the sense that medical men who keep track of the advances of their profession would be familiar with their names, and, in a general way, with their particular fields of interest. One of these, at least, has acquired distinction of the highest order.

With regard to "success," as it is commonly understood, most of the class seem to have acquired it. Forty-six hold hospital positions and twenty-six teaching positions of greater or less importance. Six have written books, and at least three have obtained fairly lucrative and honorable government appointments, while thirteen had had army, navy or national guard experience. Of the seventy-seven practicing physicians who have responded to the latest circular letter, fifty-nine express themselves as satisfied with their lot, and only three admit discontent openly. Methods of transportation indicate something in this connection. Thirty-three walk, three use the bicycle, thirty-six drive and fifteen use automobiles. But it should be considered that twenty-one of the class are engaged in special work of such a nature that no professional means of transportation would be required.

Almost exactly half of the class or two-thirds of the seventy-seven are in general practice, though of the fifty-one thus designated, seven do considerable surgery. Most of those not directly responding to the inquiry are also in general medicine, so far as can be determined, so that of the hundred remaining in practice, the classification would be about as follows:

Specialists, 27; surgeons, 2; gynaecologists, 2; oculists, 6; laryngologists, 5; pathologists and bacteriologists, 4; insurance examiners without private practice, 3; neurologists, 2; dermatologists, 1; gastro-enterologist, 1; radiologist, 1; general practitioners, including government appointees, 73.

It is interesting to note that sixteen or about twenty per cent. of those heard from are total abstainers from alcoholic drinks.

Various personal statistics are included in the history. Almost all of those replying to the committee's letter describe themselves as in good health and all but three have gained in weight since graduation. Sixty-one are married, three widowers, and only fifteen bachelors. Sixteen of the marriages have been sterile, while the remaining forty-eight have aggregated 105 children. In estimating reproduction, it is obvious that only half of the total offspring can be accredited to either group of parents according to sex. Thus, for the seventy-nine members of the class included in these vital statistics, there is a new generation of only 52.5 from which deductions are presumably to be made on account of death. Thus, it is altogether likely that, even allowing for the thirty-six men not known to be dead and for children yet to be born to the various members who are now, on the average, forty years old, the class will fall considerably short of reproducing its original number of 128 males who will reach even early adult life. This is regrettable, but, as various similar statistics show, it is to be expected in this age of the world for any body of men above the average in social standing and education. *

AN X-RAY TUBE WHICH GENERATES A RICH QUALITY AND AN ABUNDANT QUANTITY OF BI-ULTRA-VIOLET RAYS IN COMBINATION WITH THE X-RAYS.

To the Editor of THE MEDICAL TIMES:

I present here in this communication an interesting phenomenon in connection with an X-ray tube made of a certain composition of glass, the exact chemical formula of which I am not ready to state, as the analysis is not as yet finished for publication. Suffice it to say that I have found a certain glass which admits a combined generation of the highest quality and quantity of X-rays and bi-ultra-violet rays in one tube.

It was found after some experiments that such an X-ray tube made of this peculiarly composed glass, when placed in circuit gives these X-rays and bi-ultra-violet rays a perfectly free passage through its walls and at the same time in a combined state.

The first practical experiments soon showed the value of its chemical compositon.

I found after tests that no X-rays tube made from any other kinds of glass gave the richness to the bi-ultra-violet rays as this one did. I soon discovered that these bi-ultra-violet rays were the most powerful I have ever witnessed. Another important point in connection with this tube is that here we not only generate the bi-ultra-violet rays but also the X-rays in the same tube. Both these classes of rays have a fine quality.

In making such simple tests as the exposure of platinocyanide or Willimite to these rays, they will exhibit at short and long range a most vivid fluorescence. The spectroscope tells its own story by verifying the fact. If the electric test be applied to these bi-ultra-violet rays, their presence is noted in great quantity. Such a test is considered by physicists a fine one. Other tests showed similar verifications.

In the tube of which I speak, we have a great combination of both rays. The use of this tube should give satisfactory results to the therapeutics.

The trained eye of a scientist cannot fail to recognize and appreciate this electrical phenomenon.

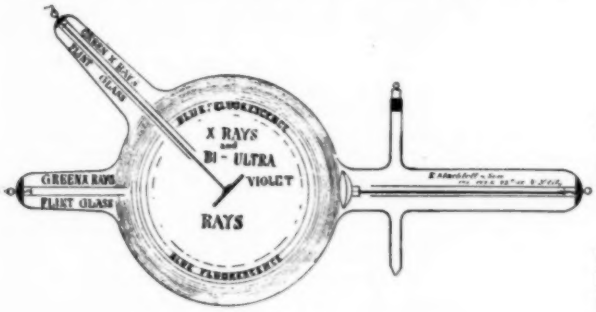
I lay claim to the fact that I have first found by experiments, and demonstrated that these bi-ultra-violet rays are present in this combined state and richness in an X-ray tube made from this class of glass.

The construction of this tube involves exactly the same principles as any ordinary X-ray tube, no matter

what its shape or style, excepting with the following differences, viz.:*

The main bulb is made entirely of this new glass. The ends which hold the metallic anode and cathode are made of flint glass and sealed into the main bulb; otherwise there is no new novelty about the entire tube. It is for this new sort of glass that I claim the property which gives this exceedingly good transmission to the bi-ultra-violet and X-rays.

The color of both these rays when viewed through the glass bulb, partakes of a bluish opalescent hue in this tube, while the flint glass of the ordinary type of tubes glow greenish. The flint glass which is blown into this new glass bulb can be seen when the tube is generating the rays and gives off the green color which is the fluorescent property of the flint glass. Any



class or style of X-ray tubes can be modelled from this same sort of new glass.

It is a known scientific fact that glass of different chemical composition gives various shades of colors when placed under electric discharge, as is demonstrated here in this tube.

To show that certain chemical compositions of manufactured glass do permit the transmission of the bi-ultra-violet rays, I append below a schedule test which a German firm has computed and given as their mathematical analysis.*

Of such another class of glass they claim an extraordinary property of transmitting the bi-ultra-violet rays through this special manufactured glass, which the schedule shows very distinctly.

I have personally tried and tested this glass and find their claims well merited. However, this glass is very hard and cannot be worked into X-ray tubes. It is found that it allows the bi-ultra-violet rays in wave-lengths smaller than 400 U. U. to pass through with great facility of transmission.*

Mathematical analytical schedule of the new German manufactured optical glass for a high rate of efficiency of transmission for the bi-ultra-violet rays.

THE SCHEDULE.

Type. N=1	Name. V=	Index of ref. for D.	M'd'm Disp'n C.-F.	Partial Dispersion. A.-D.	D.-F.	F.-G.		Sp. Gr.	
U. V. 3199	U. V. Crown	1.5035	0.00781	64.4	0.00514 0.658	0.00546 0.699	0.00432 0.553	2.41	(1)
U. V. 3248	U. V. Flint	1.5332	0.00964	55.4	0.00611 0.634	0.00680 0.705	0.00553 0.573	2.75	(2)
U. V. 3492	U. V. Flint Heavy	1.5329	0.00964	55.2	0.00612 0.635	0.00680 0.705	0.00552 0.572	2.75	(3)
S. 249	U. V. Flint	1.6529	0.01270	51.4	0.00810 0.638	0.00896 0.705	0.00727 0.572	3.55	(4)
F. 3653	Violet								(5)
786-iii	U. V. Glass	Filter for the smaller ray wave lengths.							

REMARKS.

(1) Transmits best bluish.
(2) Medium transmission bluish.
(3) The same quite strong in blue color.
(4) The best transmission is gotten from the pure white. Soft glass only possible to manufacture in small pieces with imperfections in the glass.
(5) It absorbs partially the visible part of the spectrum up to the blue and allows the transmission of the ultra violet to pass.
Filter for the smaller ray wave-lengths.

Up to the present time I am satisfied to bring this peculiar phenomenon to the notice of those interested in this scientific problem, and present the tube. I shall be pleased to have pointed out to me, however, any information which I may lack. Nevertheless, until some one shall disprove my premises, I shall hold to my discovery.*

J. Mount Bleyer, F. R. A. M. S., LL.D.,
836 Lexington Ave.,
New York City.

*To G. J. Monohan, of New York, Bario Vacuum Camp, I credit the first construction of this tube.
E. Machlett & Sons, 143 East 23d Street, New York City, are manufacturing from this new glass, the tube which I describe, under my direction.

*Eimer and Amend, chemists, represent this German firm in New York City.

*To Francis Le Roy Satterlee, Jr., M.A., Director of The Physical X-Ray Laboratory of New York Dental College, we owe the coining of the word, Bi-Ultra-Violet. I find it a good one to express the degree of the ultra-violet in the spectrum beyond the real ultra-violet.

*For full information on *"The Study of Light"* and *"Ultra-Violet Light,"* I refer you to a series of articles published by Dr. J. Mount Bleyer. The Journal on Tuberculosis, April, July, October, 1902. Also Medical Examiner and Practitioner for June, July, August, September, October and November, 1903.

A writer in the Maryland Medical Journal notices "A Delightful Clinic at Johns Hopkins," during the Maryland Tuberculosis Exposition. One of the persons introduced was a negro, sixty years or more of age, who was afflicted with tuberculosis, which was advanced. Dr. Babcock, the blind physician, was called upon to hold the clinic and show the class and the visitors present how he made his diagnosis. The man had been told not to cough, and not the slightest hint had been given as to the disease, but those who had their eyesight could plainly make out the trouble. Dr. Babcock asked two or three questions, passed his fingers rapidly over the face of the patient, then down over the chest and back, and immediately said, "This man has tuberculosis, well advanced." More than this, in passing his hands over the back, his delicate touch fell upon an artery which told him instantly that an aneurism existed. This had not been made out at this stage by the clinician in charge and the other physicians present. The blind doctor was heartily applauded for his achievement.

The experience of Chicago's Health Department in 7,435 cases of diphtheria shows that the mortality when antitoxin is used is 6.5 per cent. The mortality without antitoxin is still about 35 per cent.

CRUSADE AGAINST HUMBUGS.

The Associated Press reports that a vigorous crusade, of almost gigantic proportions, and calculated to eliminate from among American advertised industries one of the most extensive frauds ever practised, has been undertaken by the Postoffice Department. With the assistance of government scientists, the department seeks to bar from the use of the mails the host of exploiters of proprietary medicines and nostrums which chemical analyses show are incapable of performing the wonderful cures claimed for them. On the list are preparations which purport to cure dipsomania, yet contain large percentages of alcohol, some of which are vended as harmless, but are found to be deleterious; others which are advertised as "consumption cures," but contain no recognized remedy for tuberculosis, and still others which are sold as restoratives of vitality, but which are entirely incapable of accomplishing any such result.

Although this work is still in the initiatory stage, sufficient evidence has already been discovered to warrant the conclusion that many of the widely advertised vegetable compounds, kidney cures, stomach bitters, etc., are rank frauds, which cannot be of any benefit whatever, too often relying on alcohol to produce temporary exhilaration and likely to lead eventually to chronic alcoholism.

Governmental control of the mails makes the Postoffice Department absolute master of the situation, with power to exclude from the use of the postal service every letter addressed to and every circular sent out by a concern which, in the opinion of the Postmaster General, is conducting a fraudulent business, and to go even further, and exclude from passage through the mails every newspaper or other publication which, once a fraud order has been issued, persists in carrying the advertisement of the concern so excluded. No legal proceedings are necessary to accomplish these ends, and the entire burden of proof rests on the proprietor of the medicine or the concern to which the use of the public mails was forbidden. For that reason, it is believed, it will not prove difficult to drive out of business the individuals and institutions which seek to delude and defraud the public, while the department, after careful investigation of the subject, is convinced that the "medicine fake" is a greater humbug than any of the "get rich quick" concerns which have thus far been excluded from the use of the mails.

This effort on the part of the Government is no doubt the result of the exposure of these nostrums by Mr. Bok, in the *Ladies' Home Journal* for May last. That the good work should continue ought to be the wish of all good citizens.

SUNSTROKE.

The Chicago Health Bulletin sets forth some very practical statements concerning sunstroke; these are important to observe during the present dog days. Two forms are noted:

1.—Heat exhaustion by which people are overcome without being subjected to the sun's rays. The pulse here is feeble, and the skin pale, cold and clammy. The affected should be removed to a shady spot and have their heads and chests dashed with cold water. Stimulants are appropriate. Spirits of Ammonia should be applied to the nostrils.

2.—Heat stroke or insolation is much the more serious. The face becomes purplish, eyes bloodshot, veins swollen and corded and the skin dry and burning hot to the touch. Many of those who recover are ever afterward invalids, with cerebration more or less impaired. The spinal marrow and the brain evidence most the effect of the sun's heat. A temperature of 110° or more may be reached. Ice is to be applied to the head and the spine. Those who work in the sun should have their heads well protected and should wear woolen next to the skin. A pad of cotton batting or flannel sewed along the back of the underclothing would cover and protect the spine. Perspiration should be induced.

The following excellent precepts are set forth: "Keep cool as to temper, and your body will not get so hot; avoid all alcoholic drinks; eat less than usual and more simply; walk on the shady side of the street; avoid overexertion; let the air circulate freely about the head, either by frequent removal of the hat, or by wearing a perforated head covering."

"HEAC MEA ORNAMENTA."

The life of an ambulance surgeon in this city is a very hard one indeed, and generally but little appreciated or understood. It is pleasant, therefore, to note a detailed and very laudatory account in the lay press, of the courage exhibited by Dr. Harold Bailey of Bellevue. His ambulance was being driven rapidly down the Third Avenue track for northbound cars by Louis Fields, the driver. Fields turned to the southbound track and had gone but half a block when he turned again to the northbound track to get out of the way of a big truck. As he did so the ambulance was struck by a northbound car, so that Dr. Bailey was thrown out and lay stunned alongside the track. Being picked up by two policemen and carried to the sidewalk he soon revived; and remembering his call, ran to Fifteenth Street, a block away, where he found a man dead in a room filled with gas. He then returned to the street, where he fainted. Another ambulance had meanwhile been summoned and Dr. Richards responding, hurried Dr. Bailey back to the hospital, when it was found that he had sustained contusions of the left side, arm, ankle and hip, and a severe scalp wound. Symptoms of cerebral concussion were manifested, and on the night of the accident, Dr. Bailey's death was feared by his colleagues.

Dr. Pearson, another Bellevue surgeon, was badly injured in an ambulance wreck by collision with a street car; and was for several weeks confined to his bed as a result.

ARIZONA'S NEW COFFEE.

The head of a company lately organized in Arizona for the utilization of the mesquite bean claims, after exhaustive tests covering a period of two years, that he has discovered a method of treating this hitherto worthless product which gives it a flavor closely resembling that of coffee, and that another process makes the bean an excellent substitute for cornmeal. As a beverage it has, he declares, the stimulating effect of coffee, while free from any deleterious qualities.

If these claims can be proved, many millions of acres of arid land will be productive of revenue. The mesquite is essentially a desert growth, and flourishes where all else save the cactus perishes from want of water. It

is to be found in nearly all the unirrigated lands of New Mexico, Southern California and Old Mexico, but is particularly common in Arizona. As a rule the mesquite shrub attains a growth of ten to fifteen feet, but sometimes develops into a tree of large size, in shape like a full-grown apple tree. Its leaves are fern-like and its limbs are covered with thorns, with a wood which is worthless for all else but fuel, of which it is the principal source in this country. Its beans grow in long pods, and, while it has long been known that cattle and horses would browse on them when other food was scarce, and some of the Indian tribes dried the beans and ground them into flour, it has never until recently been believed that they would ever become of marketable value.

It was two years ago when the investigator first visited the Gila Reservation, in the Gila Valley, that he conceived the idea of using the mesquite bean. The white settlers above the reservation had diverted the river's flow onto their own lands and left none for the Indians. As a consequence, the Indians suffered greatly. Their grain fields were totally destroyed through lack of irrigation and their cattle died by thousands from hunger and thirst. The Indians themselves subsisted for many months upon an almost exclusive diet of mesquite flour, and thrived upon it apparently as well as upon grain food.

PRE-NUPTIAL INSURANCE.

The question of how to prevent undesirable marriages, and especially of passing a law which will prevent union of imbeciles, habitual criminals, and other persons who are unfit to propagate their kind, seems as yet far from a satisfactory settlement. The London *Lance*, in a recent issue, points out a very practical method of partially overcoming the difficulty:

"We have somewhere seen the excellent suggestion that every girl, through her parents or natural guardians, should insist upon the acceptance of her intended husband by a responsible insurance company before consenting to marry him; and this is a requirement in support of which public opinion might without any great difficulty be enlisted. The benefits of insurance are now rendered available for persons and classes of very moderate means; and we doubt whether the attraction between the sexes, or rather between particular individuals, is in any large number of cases sufficiently overmastering to cause the complete neglect of prudential considerations if these were but rendered prominent as matters of education, and strengthened by the common consent and practice of those to whom they would chiefly apply. Medical practitioners might do much to promote a proper estimation of the facts among their patients. They would seldom be justified in interfering with unasked advice as to any particular alliance, but they should earn the gratitude of the public by keeping the facts of physiology and pathology in relation to marriage under the notice of the numerous parents who might be prevented by such knowledge from consigning their children to lives of misery.

ELECTRIC BELL TO WARN OF ERECTION.

Dr. Sidney F. Wilcox, New York (*Med. Cent.*, XII., 4, 1904), after an operation for hypospadias, adopted the expedient of connecting an electric bell to the penis of the patient to warn the nurse of the approaching danger of tearing out the stitches during erection. There was applied about the penis a loose, open band, to the inner side of which was a tongue of brass, so insulated that it would only complete the connection when the influx of blood increased the size of the penis and pressed upon it.

The ring and the tongue were each connected by wires with an ordinary house battery and bell, which rang furiously whenever the contact was made. This gave warning to the nurse, who sat beside the bed, and he was able to resort to means to prevent disaster.

"To Destroy Heroism."—We heartily agree with the following remarks by the editor of *American Medicine*, anent Mr. Carnegie's endowment fund to encourage heroism:

" . . . The plan of public rewards, and especially of money-giving, emphasizes the melodramatic kinds of heroism of the cheap novel and stageland varieties, at the expense of the more effective, useful, and needed types—which are secret, modest, and persistent in their actions and motives. Then there is the great danger, almost certainty, of stimulating the sham heroisms that boast of their own exploits, or are brought to light by the hero's friends. The purest virtue and the most genuine heroic quality not only do not ask for reward or praise, but shrink from it with spontaneous shame. The 'Hero Fund' appears to be a device for discouraging the fundamental conditions which produce heroism and replacing it by the spurious varieties altogether too prevalent already."

As far as physicians and nurses are concerned in the matter—"Why," as Dr. Gould says, "they almost daily risk their lives for their patients' sake. It is really habitual with them—a part of their duty and function." The idea of thrusting upon them a special *douceur* for discharging it!

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN ANATOMY.

1. What bones enter into the formation of the thorax? Explain the attachments of the ribs.
2. Give the general anatomy of muscle. Mention the varieties of muscle.
3. What muscles are attached to the greater tuberosity of the humerus?
4. Give the blood and nerve supply of the hip-joint.
5. Describe the origin and courses of the pulmonary arteries.
6. Give the gross anatomy of the urinary bladder.
7. Give the names and formation of the ligaments of the liver.
8. Give the origin and distribution of the ulnar nerve.
9. What changes take place at birth in the vascular system?
10. Where are Cowper's glands situated and where do their ducts empty?
11. Describe the retina.
12. Give the divisions of the small intestine. Mention the different glands found at various points in the alimentary tract.
13. Describe the saphenous veins. Where does the internal or long saphenous vein empty?
14. What structures are found in the epigastric region?
15. Describe the island of Reil.

MISCELLANY

In lead poisoning one hand is likely to be hot and the other cold.

It is rumored that Professor Koch intends to resign his appointment as Chief of the Royal Institution for Infections Disease and to settle in South Africa.

According to a correspondent of the *Australian Medical Gazette*, all rubber goods will last for years if kept under water in as cool and as dark a place as possible.

It is stated that uranium nitrate is an anti-stye remedy; if persons subject to styes will take a few weeks' course of uranium, they will find themselves exempt from the annoyance thereafter.

Dr. George I. McLeod, of Ardmore, Pa., who had both feet amputated as the result of being crushed by a train last December, is now, by the aid of artificial feet, able to walk with but a slight limp. This happy outcome of a most severe injury is a source of great delight to the many friends of Dr. McLeod. He is soon to resume the practice of his profession.

A Rontgen-Ray Congress is to be held in Berlin, at Easter, 1905, to celebrate the tenth anniversary of the discovery of the X-rays. There will be an exhibition of X-ray apparatus in connection with it, and with the German Surgical Congress. His excellency Prof. Ernst von Bergmann is Honorary President of the Roetgen-Ray Congress, and has expressed his intention of being present at its sittings.

It is announced that through the will of Mrs. Julie H. Nevins, whose husband was formerly of Methuen, Mass., a home for the aged is to be built and sustained at an expenditure of one million dollars. No definite plans have yet been made as to the site of the proposed building, or whether it will be established within the city limits or in the country. It is to be designed for the accommodation of one hundred persons.

It is reported from Vienna, says the *Medical Record*, that Professor Gussenbauer has relieved a cancerous stricture of the esophagus by means of radium. A rubber capsule containing sixty milligrams of radium was attached to the end of an esophageal tube and passed down to the seat of the stricture. After a certain time, not definitely stated in the cabled report, the stricture yielded and the tube passed into the stomach.

The sipping of fluid will frequently arrest coughing, and Rahn (*Centralblatt f. Aerzte Schweiz*) recommends the use of an ordinary nursing bottle to hold the fluid when it is needed by a reclining subject. The action of sucking the nipple tends to inhibit the coughing reflex. Water, mineral water or any decoction may be used in the bottle to sip in small amounts at any time, night or day, without the necessity for rising or fear of spilling any of the liquid.

Methylene Blue in Severe Psychoses.—The Russian physicians Zaitzeff and Totporkov have studied the effects of methylene blue in thirty-seven cases of severe psychoses accompanied by marked insomnia. They have found it useful in combating the excited state, and have found it to be a hypnotic in severe insomnia accompanied by excitation. It is free from the dangers which accompany the administration of ordinary hypnotics. The dose varied from a fraction of a grain given hypodermatically to two or three grains administered by the mouth.

When Dr. Victor C. Vaughan, dean of the medical department of the University of Michigan, was speaking before the members of the Shiwassee County Medical Society recently, he startled them by remarking that consumption is the most easily curable of any of the so-called serious diseases. He took the view that only the hopeless cases come under the care of a physician, and that when his advice is sought, the patient is already so debilitated as to be unable to withstand the assaults made on his system by the disease. His statements provoked a warm discussion, but Dr. Vaughan stuck to his text.

The Oxygen Treatment for Milk Fever.—*Hoard's Dairyman* reports that nine out of the thirty-one Jersey cows which have calved at the St. Louis Fair, had milk fever, and all recovered under the oxygen treatment with no sequela. This method consists of introducing oxygen into the udder of the affected animal, and is a great triumph over an intractable disease. In the absence of oxygen, a case is reported in which atmospheric air was used by means of a common bicycle pump, a large hypodermic needle with the point ground off and a piece of rubber tubing. The bag was blown up and the animal recovered promptly.

Since the institution of the Victoria Cross in 1856 less than 500 crosses have been conferred, twenty-six of which have been awarded to surgeons. This shows that there is a disproportionate number of crosses distributed to medical men as compared with the number of officers and men engaged in various actions. That five per cent. of the entire number who have received this coveted decoration in forty-eight years should be surgeons is remarkable. It indicates either that there is a high degree of bravery in the medical profession, or else their opportunities for doing heroic acts are greater than those of officers or enlisted men.

Vibration Massage in Treatment of Chronic Prostatitis.—L. Schmidt, M.D. (*St. Louis Courier of Med.*, Aug., 1903), speaks of the importance of the prostate in its influence on the facultas generandi and coeundi. In the treatment of chronic inflammations of the organ he refers to mechanical appliances in using vibration massage, for which purpose electric motors with various attachments for controlling intensity, number and character of vibration impulses are used. Cases receiving greatest benefit are: (1) where mental condition is influenced by prostatic results; (2) where there are small inflammatory foci; (3) isthmical inflammations combined with old inflammations in the prostatic urethra; (4) simple sexual exhaustion.

"The American medicine man of to-day," says Douglas Campbell, L.R.C.S., in the *Glasgow Medical Journal*, "is a worthy descendant of all the great men of the past: Young, and keeping young even when his years are many; restless, energetic, bold, he is ever striving toward an unseen ideal. Like the art he practises, he is in a transition stage, sifting the great mass of chaff for the few grains of wheat, and with a resolute determination to find them. He is jogging along in no rut, he is travelling over unbroken ground, with all the magnificent energy of his race. The future of our profession seems well assured in the hands of such a man, and the day may come, I think, when the younger members of our calling will go to extend their knowledge and finish their education, not in Berlin, Paris, or Vienna, but in New York, and Baltimore, and Chicago."

THE DISPOSITION OF THE INFECTIVE MATERIAL IN TUBERCULOSIS.

BY JOHN B. HUBER, A.M., M.D., NEW YORK.

THE development of tuberculosis depends upon two conditions: the presence of the Koch bacillus and of its allied micro-organisms; and the state of the body by which it becomes predisposed to infection. Logically, then, to prevent consumption the bacteria must be destroyed; and the body must be fortified so that it will be made resistant to invasion. We are concerned in this paper with the first of these propositions.

The destruction of the germ is theoretically at least an extraordinarily simple matter. It enters the organism by means of inhalation; or by ingestion; or by absorption through wounds or abrasions in the skin and mucous membranes.

A. INHALATION INFECTION.

The mere breath of the consumptive is not infectious; at least so little likely to be, that the consideration is negligible. But the sputum which he emits, if not disposed of properly, is deposited at home upon floors, carpets, walls, napkins and dishes; or abroad, in public buildings, public vehicles, and the like. And this sputum dries and is taken up in the air which other people breathe. Or the atmosphere surrounding the consumptive may in coughing and sneezing be defiled with minute sprays or droplets of infective sputum.

The consumptive should invariably, while indoors, have some cloth or tissue paper before his face during coughing or sneezing. Many bacilli will be revealed in such cloths upon microscopic examination. And he should spit only into a receptacle made expressly for the purpose. If this be a cup, it should be made of cardboard; or of metal, glass or porcelain. The latter should be partly (not completely) filled with water, or a watery solution of a disinfectant. The sputum must not be left to dry in the vessel. The cardboard receptacle should be burned every day. The cup, if of durable stuff should be emptied into the closet at least twice a day, and carefully washed with boiling water. Consumptives who are too weak to use a cup should use moist cloths. They must be taught not to let their sputum soil their hands, face or clothing. If they do become soiled there should be frequent ablutions; and soiled clothing should be washed at once with soap and hot water. Male patients had best be clean-shaven; if they will not, their beards and moustaches should be abbreviated as much as may be, and kept as cleanly as possible. There should be frequent, at least weekly, shampooings.

All spitting should in general terms be frowned upon. It is an uncleanly and often an unnecessary habit. The sputum of early and obscure tuberculosis may be infectious. The germs, not only of this disease, but also of others—pneumonia, diphtheria, influenza and the like, may thus be distributed. Besides, universal observance of a rule prohibiting this practice would deprive it of its sting for the sensitive consumptive. (Cornet.)

Whenever the patient leaves his home, either temporarily or for the day's work, paper napkins or old cloths or cardboard pockets should receive his sputum. This is in the last degree essential as regards the workshop,—for Cornet declares the consumptive workman is more likely to infest his fellow-workmen than the members of his own family. Advanced consumptives who work near their fellows, such as tailors, might use the Fraenkel respirator, a metal mouthpiece provided with a shield of cambric or gauze, which may be frequently changed, and which effectually prevents the dissemination of the cough spray. However, thus to wear a mask is impracticable, and a great hardship, and it is comparatively unnecessary. Cornet finds that the dissemination of bacilli by coughing is insignificant in comparison with the number liberated by the drying of sputum.

The cloths and paper thus used should be put into paraffin paper or ordinary paper bags to be burned on returning home. Handkerchiefs should not be used for sputum. But if they are they should be boiled half an hour by themselves before being put in the general wash.

The elegant consumptive may have a metal receptacle (ornamented in any way she may fancy) which, in obedience to the natural wish not to draw attention to her illness, she can carry concealed in her handkerchief. Manufacturing houses make all sorts of receptacles. There are cardboard affairs costing the fraction of a cent. Nevertheless, there are many (perhaps most) consumptives who cannot afford even this. But tissue paper in plenty can easily be got, which can be cut up into convenient sizes. And any corner grocer will gladly (such is the sub-conscious Christianity which I find to be prevalent among the poor), furnish without price all the paper bags that are needed. So that the poor patient may put a bunch of papers in his pocket with one paper bag. And as he has occasion to use each paper he puts it into his bag and burns the whole on his return home. Or he may use a waterproof receptacle, as a tobacco pouch, which should be cleansed and boiled frequently.

Spittoons of all sorts are made. Those which lie upon the floor should be covered when not used, and should be partly (not entirely) filled with water. There are spittoons made upon stands breast high. There is one in which the receptacle for sputum is hidden, and may be pulled out like a drawer for use and then pushed back into oblivion. Above this device is a flower pot; and the pious fraud is practiced of having the visitor think it is only a flower-pot and nothing else. Such a spittoon, being on a stand, with heavy metallic base, children playing on the floor or domestic animals are not in danger of infection. Or wall cuspidors may be utilized. These have the advantage that they cannot be tipped over; vessels such as these should be supplied generously in factories and workshops. They are made to be covered when not used, so that insects cannot get at them.

For street use, particularly in health resorts. Knopf has devised an excellent contrivance—a self-cleansing spittoon, supported by heavy tubing and made of copper coated with pure tin on the inside. To the upper edge is screwed a perforated lead pipe which supplies the water for constant flushing. The heavy tubing is to be connected with the sewer, and the lead pipe is to be attached to the street hydrant.

The possibility of contamination by kissing must be considered. It were a pity, indeed, to interfere with emotional spontaneity and the comfort resulting from interchange of the affections, under the unfortunate circumstances we are considering. And one osculation isn't going to produce consumption any more than one swallow will make a summer. However, in general terms, consumptives should kiss as little as may be; and

should not, in any event, kiss others, especially children, upon the mouth.

The consumptive should sleep alone; in his own bed, and, if possible, in his own room. His clothing, bedding, and the like should be boiled by themselves at least half an hour before being added to the general wash. His handkerchiefs should be soaked in antiseptic solutions, and then boiled by themselves; if antiseptics are not handy boiling will do. Let him use old cloths whenever possible.

Dust from the walls, pictures, etc., in rooms that have been occupied by consumptive patients contain the germs and produce tuberculosis in animals when used for their inoculation. Therefore rooms should be thoroughly disinfected before they are again occupied. Rooms in which consumptives live should never be dusted with a dry cloth or brush. Carpets should be swept with a broom wrapped with a damp cloth, the latter being disinfected after use. Furniture should always be cleaned by wiping with a damp cloth, which should afterward be burned or soaked in chloride of lime solution or by boiling for half an hour in a weak soda solution. Cleanliness in the house is of the utmost importance. Here impure air is likely to be rebreathed again and again. Moreover, fine particles of perhaps contaminated dust cling tenaciously to various surfaces, and especially to fabrics, even though there be considerable ventilation. So that thick carpets, plushes, velvets, rugs, furniture upholstered with roughened fabrics, and heavy hangings should not be swept with a dry broom and the deadly feather duster, which distribute all over the room the dust gathered from corners and recesses. Moist tea leaves, or some substitute for them, should be used before sweeping; and moist cloths should be used afterward.

The furniture and ornamentation of the house should be as simple as possible compatibly with a due regard to comfort and the aesthetics. Metal beds are extraordinarily cheap nowadays. Hardwood floors, if possible, and cane-seated chairs are desirable; as is a plain, smooth, unpapered, stained wall. For fumigating bedding, blankets, clothing and the like, formaldehyde is perhaps the best agency; the manufacturing houses provide it with instructions upon the packages, stating the amount to be used for rooms of a given size. For thorough disinfection all the articles in a room should be fumigated, except such as are of so little value that they may be destroyed by burning. It is best to burn if possible such articles as have been soiled by the bodily discharges of the patient. Such articles as are made of cotton, linen, flannel and the like, and blankets should be thoroughly boiled for at least half an hour. Silks, furs, and like clothing should have the pockets turned inside out so that every part of the garment shall be exposed. Mattresses should be so placed that both sides may be exposed. Carpets should be taken up and placed upon chairs before fumigation. All the articles which were in the room during the occupancy of the consumptive should remain to be disinfected; and after the disinfection they should, as far as possible, be taken out and thoroughly aired. Before fumigating the room, all possible apertures, speaking tubes, keyholes, fireplaces and the like, should be securely stopped up. The room should be left tightly closed for twenty-four hours.

After the room has been thoroughly aired the floor should be scrubbed with soap and hot water. The furniture and wood-work, the walls and ceilings should be brushed over with a moist cloth and then the room should be opened and left to air for two or three days before occupancy. If feasible, the walls should be repapered.

Every room, especially every bedroom, should be thoroughly ventilated. Air that is constantly rebreathed soon becomes poisonous. Cold air, by the way, is not necessarily pure, simply because it is cold; it needs changing just as warm air does.

To have rooms constantly supplied with fresh air there should be an arrangement by which air from out of doors is supplied all the time. A current from room to room will not suffice; the air must originate from out of doors. It were best to have the foul air exits at the floor level, so that the general drift of the air would be downwards and not upwards into the nostrils. The room need not be cold—a fire on a cold day is essential to health; but a room can be ventilated and warmed at the same time. Stoves are generally supplied with vessels containing water, which is supposed to absorb deleterious gases. I do not think this plan effective; but among the very poor stoves are nowadays almost the only means of heating. Stoves are in a measure pernicious. They are terribly ravenous of oxygen, and they emit poisonous gases, such as result from imperfect combustion.

An open grate, or a register may cause a sufficient current. We may raise the lower sash of one window several inches—never less than an inch; and lower the upper part of a window adjacent. There should be such a current in the sleeping room all night long, and there will never be a night so cold that this should not be done. Or we could raise the lower sash six inches and fit a board beneath it, so that air will pass between the sashes. Dust extending nets and like contrivances are made cheaply to fit into these spaces. Of course, draughts are to be avoided by the sleeper. This can be done by means of screens or blankets hung up. There will be no draught when the air comes from one side only. The ordinary indoor temperature should be between 60 and 70 degrees, never more than the latter; during the night it should be much lower. Of course, these observations are of general scope. The consumptive patient sleeps (well covered) with wide open windows, no matter how cold the night. The house should, as much as possible, be permeated with dry air and sunlight, which kill the tubercle bacillus.

The house is the place where infection is most developed; and by a house is meant any enclosure which may, by reason of negligence, uncleanly habits or indolence become dark, dirty, damp and ill-ventilated. Under this category, then, are to be considered private dwellings, but also many other structures—in fact, any enclosure in which people may congregate. Among these certainly the most important is the factory or the workshop. Here, as in all places where many come together, there should be spittoons in abundance. Factory conditions, though now much improved, are still generally very unsanitary; and it is here that the consumptive workman should make the proper disposition of his sputum an obligation as serious as a religious tenet. For the matter coughed up, if distributed in the oppressive atmosphere which prevails in many workshops, becomes in the last degree infectious. Saloons come next in order of infectivity. Many poor fellows who are consumptive frequent them, and the atmosphere in them is generally soggy and unhygienic in the

last degree. And this is indeed a pity, for the condition of many tenements is so unutterably bad that the saloon becomes the preferred habitat of many a miserable fellow during much of the time when he is not working or sleeping. The saloon is an institution too deeply rooted to be removed. There is no use in getting vapid concerning it. I am of the opinion that the saloon can conceivably be made a wholesome institution, as it is in many a continental city, where things are conducted in accordance with wisdom accumulated during the centuries. There is no abolishing it; it is the poor man's club. What! because others are virtuous, shall there be no more cakes and ale? Shall not the poor man, in the name of the thousand-souled, take his ease in his inn! The saloon can be made a comfortable and clean and decent place for the poor man to be in; it can be made like the army canteen, which the W. C. T. U. have had abolished, with such deplorable results. I have had occasion to observe (during my sociological studies) that there are clean, tidy, decent saloons, where men drink moderately of wholesome liquor. They can all be made so; and the poor man will get no harm from such if he will take temperately of good spirits, and if he will be determined always to go Dutch treat, and set his face against the vicious American habit of "treating round." There are many worse places than a good saloon for a poor man to be in. I write here in general terms, not concerning the consumptive. He should not go to the saloon; alcohol in any form is not good for him. Besides, he is a source of infection in the saloon.

Family hotels, boarding and lodging houses come next. They should have periodical renovation, at least weekly. Hotels for transient guests should have rooms occupied by consumptives thoroughly disinfected. This is now systematically done in many hotels. However, the danger here is not so great as in rooms permanently occupied. For tuberculosis is relatively not to be feared from occasional contact.

In public conveyances, especially during "rush hours" in big cities, when the elevated and street cars are indescribably crowded, when men have to hang upon back platforms "by their eyelids" in order to get the ride they have paid for, there is danger of tuberculosis infection. A consumptive passenger may, in coughing, impregnate the already much vitiated atmosphere of the car; or minute droplets of his sputum may be deposited upon the clothing of his fellows. We may here include the ferry boat, where the "spitting hog" does his proudest; and the waiting rooms in railroad stations. The stuffy, plushy, cushioned railway sleepers are still more a menace, for passengers remain in them longer. It is now an excellent feature of some roads, that they provide special cars for consumptives.

It is unquestionably very important,—considering the tender tissues of children,—that school-rooms should be very light and well-ventilated; and that they should be cleaned often and disinfected regularly. This is now, I believe, well done in New York City schools. Stores and offices where business is done should receive like treatment.

Court rooms, in my haply limited experience, are abominably ventilated. In taking the oath the Bible should not be kissed, at least, not the cover. It is difficut to conceive how any predisposition whatever can escape development in the tissue-destroying psychology which is generally pervasive of these temples, where *Jus* and *Lex* so incessantly and so inconclusively play hide and seek with one another.

Public halls and meeting houses are infrequently used, and for but brief periods; so that tuberculosis infection is comparatively not so much to be feared in them. Nevertheless, they should be subjected to the general principles of hygiene.

Churches are, for the same reason, not so dangereus for infection. And cleanliness, which accompanies the religious sense, obtains generally in them. Still, the following circular, issued by the Bishop of Fano, quoted by Knopf, is *a propos*.

"(1) In every church, the floor must be regularly cleaned with sawdust, saturated with a strong sublimate solution. This thorough cleaning should take place particularly after holidays when great masses of people have visited the church.

"(2) Every week all ordinary chairs and confessional chairs must be thoroughly cleaned with moist rags.

"(3) The grate of the confessional chairs must be washed every week with lye and then polished."

Crosses, statues and like symbols, which are kissed by the devotional, should be reverently cleansed from time to time. The likelihood of tuberculosis infection during the communion service is so remote that I do not consider the use of individual communion cups essential. The consumptive communicant could be administered to separately.

The danger of infection in the public thoroughfares is not great. In the open air there is comparatively least danger, for the bacilli are readily destroyed by sunshine and fresh air and water. Still, the possibility is not to be ignored. The streets should be thoroughly cleansed, if only on general principles. And it is unquestionably important that the dust should be laid by frequent sprinkling and watering.

In fact, in all these matters it is quite essential to have a sense of proportion, to consider the degree in which infection is likely to be incurred. We should apply the underlying principles here set forth to the varying circumstances in question. We should appreciate that in darkness, damp, dirt, uncleanliness and vitiated atmospheres the tubercle bacillus thrives, and that sunshine, fresh air and pure, clean water kill the germ. We rightly emphasize the danger from the indoor inhalation of the bacillus, but not so much do we emphasize the possibility of infection on the open thoroughfares. It is essential to have this sense of proportion, because, practically speaking, our lives and those of our lay fellows would be unlivable if we were to be constantly fearful of infective processes. To live thus would be an effective way of inviting infection.

B. INGESTION INFECTION.

The extent to which ingestion infection occurs is as yet an unsettled medical problem. Since the recent interim report of the British Royal Commission to investigate the claims of Koch that human bovine tuberculosis are not intercommunicable, there can be no doubt in any reasonable mind of the possibility of bovine infection. Some very scientific minds hold that its frequency transcends that of inhalation infection; that the consideration of it is very important is unquestionable. From a broad human viewpoint—not necessarily that alone of the medical man—it is axiomatic that only fresh, clean food and drink should be consumed. Uncontaminated meat, milk, vegetables, fruits and pure water are essential; we need no scientific argument to this end.

Proceedings concerning the inspection and examination of cattle and of milk, and the sanitary requirements in accordance with which dairies should be conducted are admirably set forth in the report of the Walker-Gordon Company, of New York. No doubt this company will gladly send its report to physicians upon request.

Practically the thorough cooking of meats is a sufficient precaution. In case of the slightest doubt the viscera of animals—the liver, kidneys, etc.,—should not be eaten. In them tuberculosis processes thrive to a much greater extent than in the musculature.

We may note:

That the consumptive should not swallow his sputum; he may thus contract intestinal tuberculosis.

The bacilli have been found in the abdomen and excreta of flies; there is, therefore, some danger from this source.

Many infants contract the disease through taking into their mouths infected objects while playing on the floor.

Human excreta containing the bacilli are in general effectively disposed of; there is practically no danger from them.

C. INFECTION BY INOCULATION.

This is comparatively rare. It is incurred generally through open wounds, especially of the thorax. Surgeons, students in the dissecting room, and butchers are especially liable. We should recall that the bacillus may even traverse the unbroken skin and mucous membrane.

Those who clean glass or painted metal should be careful, especially if they have open sores or abrasions upon their hands. Servants who clean spittoons should certainly wear rubber gloves while doing so. If infection is feared, cleansing and surgical antiseptics should be employed in dressing and bandaging the wound.

I have in this paper freely interspersed my own observations with data derived from various sources. Technical information is detailed in the following appendix:

APPENDIX.

The New York Board of Health has had printed much information concerning disinfection, etc. I understand that its literature is to be had upon request, and that the Board is prepared to disinfect rooms upon application. The Charity Organization Society provides excellent circulars concerning preventive measures. Its "Handbook on the Prevention of Consumption" is quite encyclopaedic. There are private enterprises which undertake disinfection, among them the West Disinfecting Company, of New York City. Among manufacturing houses which provide sputum cups and like paraphernalia, disinfectants, etc., are the Messrs. Seabury & Johnson, the Messrs. King, Scheerers & Co., and the Messrs. Johnson & Johnson.

Reliable milk is provided by the Walker-Gordon Laboratories at a minimum cost of $2 a week for an infant or child. This milk is scientifically modified. For the city's poor the Straus depots provide excellent milk, with complete (though very simple) directions for feeding infants. The tubercle bacillus is killed by moist heat (203° F.—95° C.) in one minute (Bonhoff & Fosher). Solutions of carbolic and of bichloride of mercury cannot be relied upon to disinfect sputum. Tuberculous sputum dried in air twelve hours will be completely disinfected by an equal amount of a 1-10 solution of Izal. Chlorinated lime (1-50 solution) disinfects sputum. The cocci are destroyed more easily than the bacilli.

The following solutions and preparations are recommended:

Soap Suds Solution—For simple cleansing, or for cleansing before or after disinfection by chemicals, one ounce of common washing soda should be added to twelve quarts (3 gallons) of hot soap (soft soap) and water.

Strong Soda Solution—Dissolve one-half pound of common washing soda in three gallons of hot water. This solution is stronger and more effective than the above. It should be applied by scrubbing with a hard brush.

Weak Soda Solution—One ounce common washing soda to twelve quarts hot water.

Heat—Boiling or steaming in closed vessels for one-half hour, or boiling in the weak soda solution in open vessels for the same time, will destroy all germs. The soda has the additional advantage of preventing rust in the vessels.

Dry Chloride of Lime—This must be fresh and kept in closed vessels or packages. It should have the strong pungent odor of chlorine.

Chlorinated Lime Solution is made by adding six ounces of fresh chloride of lime, having a strong odor of chlorine, to one gallon of water. It must be well mixed and should be prepared an hour before using. This solution, when fresh, is a reliable disinfectant and deodorizer.

Formalin is a 50 per cent. watery solution of formaldehyde; it must be fresh to be reliable. A 5 per cent. solution of formalin is an efficient deodorizer and a measurably good disinfectant. Large cloths or sheets hung in a room and sprinkled or sprayed with formalin may be used. Ten ounces of formalin are requisite for each one thousand cubic feet of air space. For scientific disinfection, however, there must be fumigation. For this formaldehyde should be used.

Many proprietary disinfectants, whose composition is not revealed, are relatively expensive and often unreliable. It is essential to remember that deodorizers are not necessarily disinfectants; besides, they give an altogether fictitious sense of security.

Says Gowers, treating of "Historic Drugs": "We disinfect our rooms with burning sulphur; and so men did before the time of Homer. We purge sometimes with rhubarb, especially when some subsequently astringent influence is desirable, and so did the old Arabians for the same reason. The value of castor oil in its chief use was familiar, probably for ages, to the natives of the East and of the West Indies before it was made known in Europe by a physician from Antigua 150 years ago. Aloes was employed in the same way long before the time of Dioscorides and Pliny. The knowledge of the influence of ergot in parturition we owe to the peasants of Germany, and the use of male fern for tape-worm goes back to the old Greeks and Romans. The employment of mercury in syphilis by inunction and fumigation, which our nineteenth century therapeutics regard with such satisfaction, seems to go back to the time of the Crusades, and it is said that its use can be traced in Malabar, as far back as the ninth century. Podophyllum as a purgative we owe to the North American Indians."

TEMPERAMENT; IN ITS RELATION TO ORGANIC REFLEXES.

BY THOMAS HORACE EVANS, M.D., PHILADELPHIA, PA.

THE subject of temperament is most essential to the study of states of health or disease.

Various sorts of temper are credited to us as virtues, faults or failings, rather according to the particular shortcomings and theories of the observer than to any definite basic understanding of the case.

In Dr. Gould's "Biographic Clinics"[1] we meet an attempt to explain certain forms of temperament, and symptoms, with the idea that eye-strain is sufficiently a cause to account for a large part of the trouble in the specific instances. Whether we accept Dr. Gould's ideas or not, the book is to be praised for being one of the most elaborate and fair-minded attempts to solve a pressing problem; moreover, the reasoning is so good as to raise a doubt that a solution is reached.

The writer[2] can add his testimony to the effect that proper lenses to neglected eyes are entirely able, not only to alter temperament very much for the better, but in many other cases to cure some very grave nervous affections.

To study the factors of temperament we ought to realize how completely we are the creatures of the world about us. We live and move and have our intellectual being in a cloud of sensory impulses, not the least important of which are those which arise in the course of our essential organic functions.

Complex as we have become, our identity is but a magnification of the faculties inherent to protoplasm.[3] It is from those four, contractibility, irritability, metabolism (including respiration), and reproduction, that all our marvelous organism is built up.

In our body we find also four elemental tissues.

These are tissues specializing the original protoplasmic functions:

1. Muscle tissue is contractile.
2. Connective tissue is metabolic.
3. Epithelial tissue is irritable.
4. Nerve tissue sums up all, in a reproductive climax.

It is true that each and every cell retains a measure of all the original faculties, but in each is developed to first importance some special function. This power is developed through a physiochemic evolution.

Our conception of this has been vitiated on account of our peculiar notion that consciousness is to be limited to the brain, or central nervous system.[4] Evolution is not creation; we must look for elemental forms of consciousness, *i.e.*, organic modes of consciousness, in the original cells; and if so, this process is inherent to all cells.

Is consciousness, then, a fifth protoplasmic faculty? Not at all.

Reproduction is the organic analogue of consciousness, and the origin of what, in the complex organism, is to become the intellect.

Memory, as of thought, is the intellectual equivalent of the power which makes toward tissue formation.

All the cells of the body work toward the end of maintaining the higher nerve centers, since in these—the flower, not the root, of the organism—the intellectual reproductive process is to go on. Intellectual continuity is mind. Organic continuity is tissue. Both are wrought to a finish by the inherent reproductive faculty in its mnemonic aspect.

To the cell in simple cell division must come one acute moment when self-consciousness is born. Then, if the cells separate, the continuity, the reflective power, the intellectual potency, is forever lost. But if a tissue is the result, then the identity of self takes on the organic complicated aspect, and in the embryo, the division of consciousness, and its elaboration, proceeds—so that intellect becomes a possibility.

All of the essential protoplasmic faculties develop through the specialization of the tissues. While these tissues must influence each other's development, each will do so in a characteristic manner. We will not expect to see nervous tissue paramount in the cycle of development.

R. G. Harrison[5] quotes Roux's opinion approvingly, that organ formation and organ function formation go hand in hand in the course of embryonic development, and in measurable independence.

The central impulse to grow, then, is spread throughout the various tissues, which react to all the separate influences. He gives experiments to show that division of the spinal axis in the embryonic stage (of Rana palustris) is not sufficient to destroy the development of contractibility in muscles whose condition would be influenced by nerves from the damaged spinal segment.

Contractile consciousness is, therefore, peripheral.

The writer believes that all consciousness in itself is peripheral. However, the correlative reproductive aspect finds its seat in the nervous system, which is the center of control. It, nevertheless, must be looked upon as controlling that of which the body is the reality.

Upon the body falls the flood of sensation. The peculiar form and function of the body, it is, to interpret this, and of the brain, to correlate the interpretation.

The key, then, is to be looked for in the peculiarities of the body, for all of us are the creatures of practically identical sensory impulses. I mean we are all, in probability, affected by the same *sun*, same sorts of *heat* vibrations, etc.

But we have not, all of us, similar sorts of astigmatism, of near-sightedness, etc. Our eyes, ears, tongues, and other senses are different in acuity, and in defects, among ourselves and in the same person. Also, we may expect to find organic reflexes, internal secretions and other faculties, different and differing.

That people so differing should be different, is easy to admit.

But how will two different eyes in the same person affect the temperamental equation?

Primarily, we should expect all organs of functional relationship, near to the eye *physiologically*, that is, should suffer from the conflict of sensation. As the individual grows, this conflict will pass over into the equation as an element of friction to be overcome by a corresponding expenditure of some sort.

Very well, so long as the organism is sound and stable.

But assume some degeneracy in the individual's make up. Then, the strain is not so readily to be gotten over. Here is the sort of unholy ground for really devilish developments. And we are not surprised, when neuroses, reflexes of disease, and psychic erraticism is the outcome.

The weakest link gives way; and in each physiologic

chain there is some weakest link, we safely may admit.

So much for the eyes; as they are the organ pair most heavily taxed in our civilized mode of life, we can expect them to be predominant factors.

Their peculiar formation as an outgrowth of the brain, as well as the ethereal nature of the vibrations to which they respond will be additional reason for eye reflexes to assume importance in temperamental variations.

And here an interesting probability may be suggested: All protoplasm is sensitive to all modes of motion.

The eye developed because of light. The ear because of sound. It is quite likely that other vibrations known to science are observed by the vital organism, and that special organs of sense for them may be in the process of development. Our unexplained psychic phenemona may be in the category of such stimulus.

Indeed, at this writing, I see that discoveries are being published to show that all tissue emits *n* rays when functionally active.[4] If so, tissue is likely to be sensitive to these rays, when otherwise produced.

But to continue. Not alone in the eye, but in the ears, and other senses we are to look for temperamental modifiers. And in the whole organism,—indeed, in each tissue in the measure of its importance, and as it is conformed to the general state of health or disease. Very complex currents can be traced.

It is a fact that merely assuming a smile or a frown brings into the mind, from long association, a corresponding emotion.

Not even actors of long training can always avoid "feeling the part." And for the average person it is the same "to seem" and "to be." By this, I would not say that we cannot be hypocritical. But that, ordinarily, we are not so.

But to *intend* to be hypocritical, and not, is a temperamental factor. Take, then, the form of astigmatism in which the subject habitually frowns, unintentionally, in order to limit the field of vision and increase the visual perceptive power. Such cases will show either a state of worriment when compelled to do difficult eye work, or they will accommodate the psychic friction in a sort of pseudohypocritical state of mind, learning to frown and not feel the resulting emotion, *i.e.*, to frown when feeling no worriment.

All this friction is certain to do damage. Just where the trouble will appear must depend on the organic structure of the individual.

Further, in displacement or functional irregularity of organs, such as movable kidney, or catarrhal liver, we account for the melancholy, or the neurasthenia on the score of altered states of essential, peripheral, consciousness. The organs involved will sustain altered states of sensation, and must respond in like manner, according to their "characteristic" formations, while the nervous system is brought to bear upon other tissues of physiologic relationship in a normally or abnormally correspondent manner.

In eye-strain, coincident spinal curvature[7] cannot be an occurrence purely pari passu. Whether causative or a mere effect, suitable correction of the ocular difficulty in time, will work a cure. The temperament[8] of the body will share in the benefit.

The striking similarity and close connection of character and body, is often borne out in regard to other physical and physiologic facts. While the body determines the temperament, the temperament reacts on the body.

Only by external influence can the vicious circle, if such it be, be broken. It is admitted that character becomes a nearly fixed quantity in kind, once maturity is arrived at. This is because relationships are too well established, then, to allow any predominating influence from without—unless so strong as to threaten the very life of the person.

We learn from this to educate not alone through the mind of the child, but to consider carefully every factor in the physical as well as intellectual being, which, together, must be taken as the completion of his personality.

Very slight early difficulties are terribly magnified in the reactions of the child's development.

"As the twig is bent, so the tree inclines."

(1) Biographic Clinics—Gould, 1903.
(2) Mooted Reflexes—Author, (to appear).
(3) Essay: On the Physical Basis of Life—Huxley.
(4) A Theory of the Symptom-Reflex—Author, American Medicine. Vol. VIII., No. 8.
(5) Am. Jour. of Anat. Vol. III., No. 2.
(6) Revue Scientifique, Paris, June 4, 1904—Charpentier.
(7) Am. Med.—G. M. Gould—pp. 513, 818.
(8) Mooted Reflexes—loc. cit.

THE VALUE OF PROGNOSES IN CHRONIC DISEASES.

BY H. M. HAYWOOD, M.D.

A PROGNOSIS is not a statement of facts; it is simply an expression of belief on the part of a physician that a man will die, or live, or will be permanently disabled, or will live the average term of life, or may marry with safety and advantage, or will never be fit to enter the army or navy, or will benefit by retiring at once from work. Such a prognosis in practical medicine must be found on facts; and what the student ought to be taught in theoretical medicine in which of the many facts he learns respecting each disease can be employed in estimating and framing a prognosis. Such parts of his knowledge as he can thus employ are called "the elements of prognosis." Experienced practitioners have almost unconsciously sifted the facts respecting each of the more common diseases from this point of view so thoroughly for themselves, that they can tell with wonderful correctness what is going to happen. They say they can do so "from experience," by "common sense," by "the look of the case," they "hardly know how." Now this is empiricism; valuable in the hands of the experienced practitioner, it is useless to the student or young practitioner, because not available by him. Prognosis in pathology, like prognosis in meteorology or weather-forecasting ought to be a rational application of scientifically determined facts; and every portion of this knowledge has some bearing, direct or indirect, constructive or destructive, on prognosis, just as it has on treatment.

"The element of prognosis" in every disease are the facts with respect to its etiology, its pathological anatomy, and its clinical characters and course. In practice, as well as in theory, it is useful to keep these three orders as far as possible apart and to consider them separately. Perhaps I had better illustrate my meaning here by a reference to prognosis in an acute disease. Take a case of acute pneumonia—a peculiar instance of anxious practical prognosis. Is the patient going to

live or to die? What are the elements of your forecast? The pulse, the respiration, the pulse-respiration ratio, the temperature, the nervous phenomena, delirium, typhoidal symptoms, clearness of mind and expression, the extent of lung involved, the invasion of one lung only or two, the situation of the lesion, the stage of lesion, the characters of the sputa, the state of the urine, the soundness of the heart; and as careful and experienced observers, you will certainly add two other bits of knowledge,—first, the patient's previous record of habits and life generally; secondly, the cause of the pneumonia, whether septic, typhoidal, influenzal, due to drain-poisoning, contagious or not. This is a long list of the elements of which the prognosis is constructed in pneumonia, yet you will allow that there is not one of them that you can afford to overlook; first, there are the etiological facts. To this order belong the kind or type of the penumonia, its cause, which of the recognized micro-organisms or toxines is present, a point which unhappily is often easily settled on the second day by observing how the patient is already overwhelmed by the disease. And to the etiological order also belongs that prognostic element which you might well consider the most important of all—the man's record or previous history. Next we take the pathological facts—the extent, situation, distribution and stage of the pulmonary lesion, the state of the rest of the pulmonary tissues, and the condition of the other viscera, particularly the heart, arteries, and kidneys. Each individual under this head is of some service to you; each has its prognostic value which you may estimate, and which constitute a "point" in your judging or judgment of the case, for recovery or against it. Lastly, there is the great order of purely clinical facts—such as are before you at the bedside—purely clinical phenomena and clinical course —the temperature, the rate and characters of the breathing, the pulse, the nervous symptoms, the presence of complications, the sputa; and the day of the illness, the features of its invasions, development, and progress, and the proximity of crisis. Thus, it appears that in acute pneumonia, the many facts that are turned to account in framing a prognosis may be arranged in different orders, and arranged thus with great advantage. If this method is useful in acute diseases, how essential it must be in chronic disease, where prognosis relates to years, and involves the review of a vast collection of facts.

The doctrine of the diatheses was over-elaborated by older practitioners and the tendency to speculations, amounting frequently to mere fancies, doubtless led many physicians to discard the whole doctrine; for the half century few medical authors in any country have referred to the matter, or to regard it in reference to diagnosis or treatment. It appears to Duckworth after more than thirty years of experience in hospital and in other practice, strange to put in a plea for the careful study of this matter, for he declares he believes in the absolute certainty of these doctrines, in respect of at least two habits of body, and conceives it impossible to comprehend some of the problems which meet us in daily practice without a knowledge and recognition of these facts. Let us take an illustration: the study of tuberculosis widely engages attention from bacteriologists and physicians; one of the factors relating to the start of this disease, the condition of the personal bodily predisposition, appears to be ignored entirely. Who are the subjects of tuberculosis, and, are all human beings equally liable to this parasitic invasion? In regard to the last question I would say "no." Many individuals manifest sturdy resistance to tubercular infection. Those individuals who offer little or no resistance of tuberculosis are persons whose bodily tissues are so constituted as to present a suitable and favoring soil; these classes of persons are obviously of different conformation, since they react differently to the same invasive irritant when it invades their persons. Let us discover if we can, wherein lies the specific difference in these two cases. Tuberculosis is due to a particular element, and is not conveyed from parent to offspring; if not communicable from parent to child, it is, therefore not hereditary. Yet, the offspring of tuberculosis parents too commonly fall victims to tuberculosis; the old opinion that tubercular maladies were hereditary—that is, that the seeds of the disease were already implanted, as it were, in the intimate tissues of the newly born—has been largely discarded. To the textures both of the parent and the offspring, whose intimate tissues react badly, and offer little or no resistance to the bacilli tubercle, we apply the terms "scrofulous or strumous," yet these names reintroduce terms now seldom used in medical writings. The old conception of a "scrofulous habit" of body has been discarded to a large extent, and pathologists are bold enough to declare that a "scrofulous state" is a tuberculous state." Yet the terms are not synonymous, for a scrofulous person is not a tuberculosis subject unless he is specifically infected by tubercle bacilli. It is possible to be scrofulous through life, without ever becoming tuberculous, and herein lies a great fact in practical medicine which we neglect. Unfortunate as it is to possess by heredity a strumous habit of body, yet by special precautions, an individual thus diathetically impressed may entirely avoid tubercular infection, and so escape it during his whole term of life. The strumous diathesis has long been well defined, and better studied by our predecessors than they are by us to-day. The old physicians described two main types of this condition, somewhat facetiously termed the "ugly" and the "pretty" varieties. The liabilities and the specific qualities of each variety are practically the same. Persons of the strumous habit are especially vulnerable to irritants of all kinds, and react badly to them. Their wounds heal slowly; any inflammatory process in them is apt to linger and leave sources of mischief behind it. The condition modifies many processes of other morbid states. The strumous patient is a bad subject for pneumonia, pleurisy, and enteric fever. In the tropics he is more liable to suffer from hepatic abscess; while injuries to joints and bones are slow to repair. The lymphatic system is especially sensitive, and glandular enlargements are thus readily induced. Strumous subjects recover with difficulty from parenchymatous nephritis. The same statements have been made with regard to this matter in the case of lupus; it is probable that both classes of observers are right, but it is certain both as to adentitis and to lupus that the bacilli are few and hard to find. Many other irritants than tubercle bacilli are capable of inducing adentitis in scrofulous persons, and are not to declare for tuberculosis in all cases of adentitis which may occur in them. It is a common experience that this disorder is apt to decline, spontaneously, under treatment, or after suppuration, and leave the patient free from any tubercular manifestations for the rest of his life. The fact of such past adentitis is,

however, a keynote of the constitutional diathetic habit of that particular person, and this habit never dies out, for it is part of his nature, significant of the peculiarity and intimate quality of the tissues of his body. It may fairly be urged that tuberculosis is not peculiar to persons of this diathesis. Persons need not become strumous before they become tuberculous, but no person of sound body and in robust health is likely to harbor, and encourage the growth of the bacilli of tubercle.

A condition of low textural vitality must exist even in those who come of a healthy stock, whereby their resistance to this invasion is weakened; this susceptibility may be temporary, and, with renewed powers tuberculous processes may be arrested and prevented from spreading till a further depressed condition of health occurs, when the resistance is again lowered and fresh outbreaks take place. No disease is more often arrested than tuberculosis, and is found on the results of autopsies which afford indications of obsolete or inactive tubercle in some thirty or forty per cent. of all cases which come to post-mortem. Of course, these figures are drawn from hospital practice, which everywhere deals with the poorest classes of humanity, and, moreover, these classes are composed of persons who from various circumstances are especially liable to specific tubercular infection. We may fairly believe that a much smaller percentage of obsolete tuberculosis would be found in the bodies of persons who enjoy a superior environment. It is certain that many persons are completely immune from attack by tuberculosis. Were it possible to institute direct experiments upon these happy subjects, this immunity could be demonstrated.

In inheritance and curability of tuberculosis Stich believes that the inherited predisposition to tuberculosis has entirely too much importance attributed to it, and that the disease is much more curable than is ordinarily supposed. For years we have been taught to believe that these two features, inheritance and incurability, were fundamental characteristics of tuberculosis. Great doubt was thrown on the first of these by Koch's discovery of the tubercle bacillus; for if tuberculosis were an infectious disease caused by a micro-organism, the question arose to what could be inherited. It seems impossible to believe that the transmitted bacillus fixes itself upon the foetus; and the only thing then inherited must be a certain disposition to disease, or weakness of certain tissues, which were themselves weak in the parents; just as the color of the eyes, hair, etc., may be transmitted from parent to child.

If this, then, is all, there is no reason why, by proper care of the development, these weak tissues cannot be made as strong and as resistant to the inroads of the tubercular microbe as those of any other individual; and lose in time any special liability to the disease. In what this weakness of the tissues consists cannot yet be determined. It is, morevor, to be borne in mind that the most robust individual, without a trace of inherited taint, may fall a victim to the malady. Clinical histories might be related bearing upon the point, but he confines himself to one incident. For eight years Stich was the physician to the orphan asylum of Nurnberg, in which were many children with exceedingly bad family histories of tuberculosis, as is to be expected among orphans, yet but one case of tuberculosis has occurred in the institution. Moreover, among those who had left the asylum, there has developed, so far as he could discover, only one case; though many of the former inmates have reached twenty years of age. The question as to the reason for this strange immunity has often occurred to him, and is, he thinks, to be explained by the scrupulous care for ventilation and cleanliness which the institution receives, as well as by the other excellent hygienic conditions under which the patients live. The children are early accustomed to daily cold baths, and are much in the open air. Other diseases of the respiratory apparatus—even such ordinary ones as bronchial catarrh—are almost never observed. Concerning the curability of tuberculosis there are widely varying opinions; some writers allowing that well-recognized cases recover; others that only patients in the incipient stage may get well, while still others claim that even the apparently perfect healing of a tubercular process, lasting thus for ten years or more, is but a temporary arrest of the disease. All agree that cure in the true sense of the word is impossible in the advanced stages. Whether tuberculosis in its early course is curable cannot be determined either affirmatively or negatively on purely theoretical grounds, and only the evidence from positive and undoubted cases of the disease which have been under observation for years is of value.

Stich has devoted considerable attention to this matter for several years, and is disposed to answer the question in the affirmative. He relates several instances from his own experience, seeming to prove that recovery may take place. These had had repeated hemorrhages from the lungs, and exhibited evidences of consolidation, yet had, to all appearance, entirely recovered, and the physical signs had for the most part disappeared. The author has often been in the position to observe a not infrequent occurrence: namely, that in the apex of an apparently healthy lung there will be found post-mortem one or more small cicatrices of former cavities, filled with crumb-like, cheesy contents; these being the remains of a chronic pneumonia, or more properly speaking, of a well-advanced tubercular process. He relates two cases in aged persons dying of gangrene and of carcinoma respectively, in one of whom there had been a history of pulmonary disease—hemorrhage and cough—during youth, and where the post-mortem lesions just described were present. As regards the treatment of tuberculosis, he advises no great change from that ordinarily employed, but would especially insist on having fresh air in the rooms, and abundant diet. Bodily exercise, even to fatigue, is very valuable, provided it be taken in fresh air, and that there is no disposition to hemorrhage. He recommends mountain climbing and long walks, and that the windows of the rooms be constantly open in good weather, but closed at night in disagreeable weather. Medicines are only employed as needed.

In discussing whether the practical immunity from tuberculosis of the majority of people who live in what Sir Andrew Clark termed "physiological righteousness" is due merely to a survival of the fittest, we may fairly believe that the wide-spread invulnerability to tubercular disease is due to the possession of constitutions, or habits of body, which are so organized as to resist the inroads of the specific parasite. Tubercle bacilli will no more settle and thrive on a soundly constituted body than a pine tree will grow on a chalky soil, or roses flourish on a sandy one; this fact certainly deserves recognition, and compels us to pay due heed to the family medical history and the textural peculiarities of our patients. Obviously, to fortify a constitution against a

strumous habit is to prevent the onset of tuberculosis in it. A recognition of this diathetic proclivity warns us to avert from its possessor all possible chances of tubercular infection. In many parts of the world rheumatism and gout are common disorders, and the same may be affirmed of the varieties of deforming arthritis; but not every one is rheumatic, gouty or arthritic. Regarding all forms of true rheumatism, as of an infective nature,—due, that is, to a specific and particulate microbe (a diplococcus),—we have to inquire why so many persons who must be freely exposed to the infection escape the malady? Only certain persons are prone to be so infected, and they are the subjects of that habit of body which is recognized in the French school as the "arthritic diathesis." This diathesis is not less common than is the strumous habit of body; like all such conditions, it is heritable, and it denotes a peculiarity of textural proclivity which proves a suitable soil for the reception and development of the rheumatic peccant matter. We find, therefore, a condition here analogous to that which we have noted in respect of the relation between the strumous habit and tuberculosis. The arthritic diathesis is a remarkable one. Charet regarded it as a basic condition from which two main branches extended, giving rise to a rheumatic and a gouty stock respectively. Persons of this habit are specially liable to suffer from all forms of rheumatism, and have an inherent tendency to develop gout; the immunity from such maladies which any persons possess, although equally exposed to one and the other, is probably to be explained by their sound and normal condition of body, which affords no nidus for the specific infection in the one case, and is void of the peculiar form of tissue metabolism which engenders the autotoxin of the other. The term "rheumatism" is often but a synonym for pains of many kinds. Many painful conditions attributed to rheumatism are often of a truly gouty nature; rheumatism is not arthritis and carditis alone, but as a disorder which may and often does alight upon other textures,—to wit, the skin, the throat, the muscles, and the brain. To any of these varieties the arthritic subject is exposed, and some of them may appear in his offspring, and possibly be unrecognized as manifestations of rheumatism. The arthritic diathesis is to be regarded as a habit of body which is especially vulnerable to such peccant matters as generate rheumatism, gout, and some other ailments, and prone to react specifically more or less severely in respect of the component structures of joints. Many persons are thus texturally impressed, and their tissues present a soil in which the irritant toxins just indicated flourish readily and provoke their respective manifestations. The two diathetic conditions are in some measure antagonistic, yet we meet with a blend or coalescence of them in many instances, the one modifying the other. In any case the strumous element is a harmful one. We have seen that under its influence diseases alighting on its possessor are apt to be rebelllious and lingering. A strumous subject is a bad one for all acumen disorders. We note not seldom a history of tubercular disease in the relatives of patients suffering from osteo-arthritis, and in many of these the strumous suffering badly modifies the course and the degree of intensity of the malady. It is comparatively rare for gout to occur in persons of a strumous habit, and there is a greater antagonism here than in most cases. The more strumous the less gouty; the more gouty the less strumous. This fact is well manifested in the life-history of the children of the gouty, who rarely show any signs of struma; and, again, we see indications of it in the behavior of any tuberculous process which occurs, although rarely, in the gouty. Tuberculosis in the gouty is almost always chronic and slow in progress, and the lesions tend to heal readily. Gouty arthritis is apt to be lingering and accompanied by more effusion if there be a strumous element in the patient. We thus derive a hint in regard to the treatment of scrofulous subjects, and may confidently feed them upon a full animal diet, with wine, in gouty-provoking manner, to their great benefit. We occasionally meet with cases of senile scrofula at a time when some of these patients have lived long enough, and well enough, to grow gouty, and such persons may attain to great age in comparative comfort. The gouty element has been a saving one for them. We meet with some of the worst forms of syphilis in strumous subjects, and the lesions of the former malady assume modified aspects in gouty subjects. The latter are singularly vulnerable to the poison of gonorrhoea, and afford the worst examples of so-called gonorrhoea rheumatism and iritis. The older physicians in their accounts of some other diathetic states were practical as clinicians, and more given to theories, elaborated out of their inner consciousness various diathesis which we cannot now fairly recognize. It is improbable, however, that there are other conditions of tissue-proclivity which have not yet been differentiated. To apply the doctrines relating to these states of body, it is always important to bear in mind that they may be, and often are, modified by blending of constitutions, by repeated inheritance, and to recognize that any of them may be intensified by the reinforcement of the like. We shall never be able to assort matrimonial alliances on absolutely sound principles in respect of diathetic tendencies, but, as physicians, we should do well to make efforts in this direction. The result of promiscuous diathetic alliances is that we rarely find a family without a history of struma or arthritic tendency in some of its ancestors or collaterals. But we have not far to seek for instances affording proof of the reality of the specific tendencies that I have indicated, and not seldom we meet with examples which illustrate them only too perfectly. The diathetic states discussed have an important bearing on our diagnosis and treatment of certain diseases. I believe that the doctrines relating to them cannot safely be discarded and left out of account in practical medicine. They explain many of the puzzles and peculiarities which come before us. It will be observed that they in no way contradict, but afford valid support to, the latest teachings of modern medicine.

Is Appendicitis on the Increase?—Intelligent laymen frequently ask why appendicitis is such a common disease at present, when it was unknown twenty years ago. Certain writers have given this alleged increase as a stigma of physical degeneration. Villaret (*D. Med. Woch.*) in studying the statistics of the German army, finds that while the diagnosis of typhlitis and appendicitis is 70 per cent. more frequent than thirty years ago, the prevalence of liver diseases, peritonitis and chronic stomach diseases has decreased 64, 70 and 79 per cent. respectively. From this he correctly argues that the disease was covered under these names and altogether must be less frequent at present than thirty years ago.

THE DIAGNOSIS OF RACHITIS.

BY T. M. HAMMER, M.D.

SOME phases of rachitis, owing to our ability to differentiate them from other forms of bone deterioration, are becoming better understood; for example, a positive proof that the atonic condition of the fibrous structures is a different disordered condition from rickets, appears to be afforded by the fact that the in-knee, commonly called statical (as distinct from rachitic), and which we prefer to call atonic, originates when the growth is most rapid, not only in early infancy and childhood at the age and during the years in which rickets invariably begins and ends, but may originate also between the ages of five and twelve, and especially often during the second fast-growing period which precedes puberty (age twelve to sixteen or seventeen), when true rachitis does not appear. We thoroughly believe that there is not a single fact on record to show that any symptom or sign of rickets affecting the bones or other parts of the frame was ever observed to originate within those years; no pathologist will deny now that unequivocal rachitis exhibits distinct stages, that these stages run a certain course as to time and as to the nature of the bone and constitutional changes; and the osseous system, which has once traversed the ordinary rachitis stages, has never been known to traverse these stages a second time, differing in this respect from somewhat analogous bone changes which occur in scorbutus; again we know that the non-rachitic genu-valgum of early infancy, and that which begins at impending adolescence, may return, whereas no one has ever seen a once softened and curved, then afterwards straightened aand eburnated rickety bone, soften and bend a second time. It should be noted that atonic knock-knee may originate before adolescence, and rachitic in-knee may become greatly, and often very suddenly, aggravated by undue standing and walking, and weight carrying, at that age. The changes at this age are at the joints only in atonic knock-knee, and even in rachitic cases the aggravation is sometimes more in the joints than in the bones. Although eburnated bones are doubtless less inclined to bend than normally ossified bones of that age, yet eburnated and much distorted bones may not be able to resist further bending at any age when exposed to the influence of gravity so disadvantageously applied, as in the case of individuals whose bones are already curved having to bear the burden of relatively heavy weights and over-standing and walking. Such persons can only be correctly described, pathologically and symptomatically, as persons affected with rickety distortions caused by rickets in early childhood, now, *i.e.*, in adolescence, becoming aggravated by statical influences. They can not be correctly termed the subjects of rickets, for that disease subsided in childhood, certainly before the age of five or six years.

Bones which have once reached the stage of eburnation do not, again soften; the increase of deformity during adolescence mainly, if not exclusively, depending upon yielding at the joints, and not in the already curved shafts of the bones. The sudden appearance of atonic knock-knee, or of comparatively sudden aggravation of pre-existing slight rachitic distortion, have misled physicians to the belief that rickets may originate in late childhood and adolescence. Severe rickets afford the most intractable of the causes of in-knee, when the constitutional disorder and the local condition have been neglected in the early stage. A state of more or less complete rachitism is a frequent cause also of the inability of infants to stand or run properly alone at the ordinary age when unaided; properly locomotion is affected, say from the tenth to the fifteenth month. "In relation to distortions the important feature of rickets is that of softening the bony frame-work of the system; hence a sinking of certain parts beneath the superincumbent weight, and a liability to alteration from the natural shape through the action of the attached muscles. Rickets is not solely a disease of the osseous system; simply its effects are in this part more obvious, and, therefore, have been longer noticed. Our own opinion is that every tissue of the frame is involved in the loss of tone and firmness,—the bones, the ligaments, the involuntary and voluntary muscles and their appendages, the membranes, glandular organs, and the nervous system. The precursory signs of rickety distortions, consisting of slightly enlarged head, weakness of loins, pallid face, flabby though bulky limbs, tardy dentition, tumid abdomen, with continued liability to bronchial, gastric and intestinal derangements, manifest themselves from the sixth to the tenth month. Soon the wrists begin to enlarge, the ribs to flatten, the bones of the lower extremities to be slightly curved, and the child remains incapable of standing; deformity is already apparent. In a more advanced stage more numerous articulations become distorted, the inner ankles sink beneath the weight of the body, the knees knock together, the thigh and leg bones curve, flexion of the pelvis upon the thighs, and curvature of the lumbar vertebrae ensue."

The tendency of rickets is to shorten the stature, to give to the head a disproportionate largeness, to narrow and flatten the chest from side to side, to arch the clavicles upwards and forwards, to produce protuberance of the belly, excessive length of the arms, disproportionate shortness of the lower limbs, and curvatures of the long bones, especially in the legs, seldom without some in-knee deviation. Again rickets commonly affects the bones of the lower extremities to a greater degree than those of the upper part of the trunk. It is quite certain that rachitic distortions are more frequent and more considerable in the lower extremities than in the upper; yet it might be that rickety distortions impress the senses and mind of the observer to a greater extent than the constitutional and more concealed phenomena of the disease, and, therefore, might have led to an erroneous conclusion that rachitism may affect earlier, and to a greater degree, the bones of the lower extremities than those of the upper. Look at an extreme subject of rachitis who has completed growth to note the disproportionate length of the trunk compared with the extremities, and that often the lower limbs alone are appreciably deformed.

In the healthy infant the growth of the bones of the lower extremities during the earliest months of life is considerable, whereby the disproportionate shortness of these parts at birth is removed. If the infant comes into the world with hereditary rachitis, or with a predisposition to it, acquired at the period of impregnation of the ovum, or imbibed during gestation, the onset of a disease, one of the essential characters of which is to prevent healthy bone development, is likely to be first manifested in the parts of the osseous system, the bones of

the lower extremities, which in the human foetus are comparatively small before birth, and which in the norm undergo a remarkable increase of growth during the first few months of life. It is known that at birth the vertebral column, and consequently the trunk, is naturally long compared with the lower extremities. It is also known that the vertebrae are less apt to be affected with rachitic softening and consequent hardening than the "long" bones of the lower extremities. Although artificial production of rachitis in domestic animals is reported, it is doubtful whether this disease is ever the result of the operation of its predisposing and determining causes in a single generation, whether it be not always hereditary, whether it is not as much a specific disease as syphilis, cancer, variola, or scarlet fever. Two or more children of the same parents affected with rachitic in-knee are often seen; but amongst well-to-do people, whether brought up at the breast or spoon-fed, we have oftener seen, we believe, a single distinctly rachitic child in a family where there were several healthy well-grown brothers and sisters, than we have seen a single genu-valgum in a large family from deficient, unsuitable feeding, owing to the absence of breast-milk of the mother. The earliest born children of a mother who cannot "nurse" her infant usually suffer oftenest from non-rachitic genu-valgum, whilst our belief is that a single distinctly rachitic young patient has often been one of the later born.

An important and early sign of rickets is found in the globular, bead-like swellings formed at the sternal end of the ribs at their junction with the cartilages. Any trace of such swellings in a case of in-knee proclaims its rachitic character; examination of the teeth, especially of the second set, should not be omitted, as these often display the rachitic character of parallel horizontal lines of enamel taking the place of an uniform layer of this hard material, the deficiency being commonly greater at the cutting edge of the tooth than toward its root, and in extreme cases both the sets being extremely deficient in hard matter, and being many of them shed soon after they pierce the gums. To understand the bearing of these facts upon the diagnosis of non-rachitic from rachitic knock-knee, it will be necessary to dwell for a moment upon the normal condition of the lower limbs during the latter months of pregnancy, and the normal development of these parts during the first months and years of life, and compare this normal state of things with the abnormal state of things introduced by the rachitis. Any surgeon, familiar with the treatment of congenital club-foot during the earliest weeks and months of the child's life, will have been struck with the fact, already mentioned, that an extemporized splint of any inextensible material fitting during the first fortnight or month, becomes uselessly short during the second fortnight or month, and that this experience is repeated every few weeks afterwards; and every nurse takes pleasurable notice of the rapid growth of healthy, non-distorted limbs at this period of life.

It is difficult to keep fast-growing boys supplied with trowsers of sufficient length from the age of about thirteen to seventeen, and the physiologist is aware that at this age the pervious disproportionate length of the trunk is rapidly balanced by the uncommon rapid development in length of the lower limbs, so that by the end of adolescence the individual destined to be, say, for example, six feet high, shall measure upwards and downwards from the trochanters each way three feet. A large and long infant, the first-born of the family, destined, as the result showed, to be over six feet high when growth was completed, weighed at birth twelve pounds, and measured twenty-two inches in length. At three years old, agreeing with the commonly received opinion that at that age half of the ultimate height would be attained, this child measured something over thirty-six inches, and was seen by one of us on account of the appearance of slight double in-knee. During three years, up to this time, he had grown at an average rate of four inches and two-thirds annually. But as seven inches, one-third of the growth at birth, were probably added to the growth during the first year, the growth during the second and third years amounted to about seven inches in these two years. He became six feet high at twenty-one, and did not cease growing until twenty-three, when he attained the height of six feet one inch and a half. Between the age of three and twenty-one he had only grown thirty-six inches, an average of two inches per annum. As it is certain that he grew rapidly soon after the commencement of adolescense, there were years before adolescence and during the later part of adolescence during which the growth will have been less than two inches yearly.

The greater number of atonic cases of in-knee arise at the two periods at which the most active physiological evolution of the bones of the lower extremity take place, the first period extending from birth to the age of three or four years, and the second period coinciding with that of puberty from the age of twelve to seventeen; rachitic disease is confined to the first of these periods, although distortion may remain and possibly increase through the influence of gravity. Infantile rachitic curvatures of the lower limbs with in-knee are brought to us at the same period of life as the non-rachitic; but it will be found on investigation that many of these children had signs of rachitis at birth, or very soon afterwards, and were not brought to us for advice until the deformity was more glaring, and the parents had lost the hope of "the child out-growing it." The last point of distinction lies between in-knee of simple debility from relative over-exertion in proportion to strength, which occurs pre-eminently in fully proportioned, long boned, fast growing, tall infants aand adolescents—and in-knee from the specific disease, rachitis, which tends to arrest growth, shorten the bones, and present distortion in comparatively short-limbed individuals, consequently of ultimate comparatively short stature, and which begins and ends in infancy, before the age of five or seven years. To determine between rachitic and non-rachitic deformities it may, during infancy, practically suffice to regard as non-rachitic those cases which present no signs of rachitis in other parts of the economy. The first appearance of in-knee during adolescence, say for the twelfth or thirteenth to the sixteenth year, seeing that rachitis never originates during those years, is conclusive evidence that we have to deal with a non-rachitic affection. Macewen and others, who assert that they witnessed the origin of rachitis after childhood, have been misled by the *a priori* notion that all cases of knock-knee are due to rachitis. It is believed largely that rickets and its consequent curvatures, combined with genu-valgum, originate after infancy. We have never even seen a case of rachitis after the age of four or five years, for by that age the natural transition from softening to undue hardening has fully set in.

The deformities from curvature of bones and yielding of knee joint may remain, but these are the effects of disease, and not the rachitis itself. Rare cases of mollities and fragilitas ossium originate during later childhood and puberty, but these cases are acknowledged by pathologists to be distinct from rachitis.

Remember that the apparent degree of the knee distortion is augmented in rachitic cases by the frequent curving inwards of the femur at its lower third, and of the tibia at its upper two-thirds. These curvatures, if not considered, may lead the surgeon to overestimate the true amount of knee joint inversion; for we have shown in the preceding pages that in-knee may exist without curvature of the bones. It may even be safely asserted that the inward inclination of the knee joint itself is greatest in the cases in which no rachitis exists. Some surgeons have wrongly confined the term "genu-valgum" to rachitic cases. If by genu-valgum is meant inward inclination of the knee joint, the term should rather be confined to the non-rachitic forms. Bad cases of rachitic knock-knee, with curvature of thigh and leg bones, would be more correctly termed rachitic curvatures of those bones with genu-valgum. An additional point of distinction between non-rachitic and rachitic cases follows as a consequence of the absence of curvature of bones in the former, namely, that in these, apart from inversion of the knee joint structures, the contour of the thigh and leg are unaffected: these parts remain as symmetrical as they were before the genu-valgum took place, as may be seen in the reduced copies of outlines of the limbs affected with in-knee, taken some years before the discovery of photography, by passing a pencil around the child's limbs while he lies on a sheet of paper. The non-rachitic in-knee may be cured in the young child in a few weeks or months, whilst the changes required to be affected in the rachitic constitution for its cure, and the arrest and permanent removal of the attendant curvatures of the thigh and leg bones, which so much intensify the genu-valgum, is often a matter of months or years. While the pathology of ordinary infantile paralysis is clear from that of rachitis, there is no reason why they should not accidentally co-exist.

Many patients, often elderly people, show chronic knee rheumatism of moderate degree of severity; others, with "rheumatic neuralgia," as they term it, with exquisite suffering; usually there was present in these cases some serious effusion in the bursa beneath the ligamentum patellae, or within the joint itself. Such patients were accustomed to be driven out, and hobbled about with the assistance of one or two sticks; it often has appeared that the pain and lameness complained of were out of proportion to the actual amount of rheumatic or other diseased action going on in the part. In most knee affections, the pain has been referred to the inside and neighboring part of the front of the internal condyle. It is worthy of remark that some of these long-suffering patients had been under the care of a succession of able men—who probably from being unaccustomed to the study of abnormal changes of form of parts, comprehended under the name of distortions—had apparently failed to observe the existence of some degree of inward inclination of knee, for they had omitted to take any therapeutic steps to correct the evil of it. Owing to the inversion the normal comparative perpendicularly was infringed, and the pain and inconvenience attending even awkward attempts at locomotion were aggravated.

It probably commenced with ordinary subacute serous effusion into the joint, and consequent loosening of knee connections, and gradually some abnormal flexion with genu-valgoid abduction and rotation outwards of the tibia took place. The pressure of the tibia against the external condyle led, after long continued use of the limb during awkward modes of locomotion, to the utmost conceivable destructive internal joint changes, the reciprocal wearing away of the articulating fecets of the tibia until the head of this bone approached the form of a pestle, and erosion and disappearance of the external condyle of the femur, through which a very unworthy species of new joint was formed. Doubtless muscular action, especially that of the biceps, had here been an important factor in increasing distortion, as it is in cases of ordinary knock-knee; but we believe it may be regarded as certain that the greater part of the mechanical changes, represented in this preparation, was due to statical influence,—the act of walking during an improper bearing of the parts upon one another owing to loosening of their several connections, precisely as we have shown distorted knee to arise in the infant and adolescent from atonic relaxation of fibrous tissues, or in the infant from rachitic softening of the bony structures. Nature or gravity works in the lower extremities exactly as in the spinal column affected with scoliosis, or twisting of the spine, which is a strictly analogous distortion to in-knee, occurring in distinct forms,—the atonic and the rachitic.

Writers on rachitis, during the middle of the last century, described seven or eight forms of this disease, one of which was the syphilitic form, which has long been abolished by later writers; a better study of this disease has, as in so many other diseases, simplified the knowledge of it. In the well-marked symptoms of rickets are the clefts or deep creases in the integuments in the less severe cases, as at the upper and inner part of the thigh, even in fat children, which are signs of bent bones beneath. In the later stages greater hairiness of the general surface is sometimes perceptible. It occurs mainly on the back, arms, and sides of the face. The late production of teeth, and their incomplete character as regards both enamel and dentine, with premature shedding, almost forms a pathognomonic sign. We may often in the later age of rickety subjects note in the succession of the imperfect rings of enamel, and of discolored dentine in the second set of teeth, the phases of temporary alternate amelioration and deterioration of the former constitutional state of the child. The physiopathological relation between the symptom of unusual hairiness, and that of defective teeth, if any, has not been determined. It is known that the primary mould of the bone in the embryo is a tolerably firm one, composed of some form of the gelatinous group of animal substances, in which first cartilaginous cells, and later on bone particles, are developed, as it poured in for the purpose of successive degrees of hardening. We know also that by long soaking, in an acid solution, a healthy bone removed from the body, the mineral matters can be removed, and the bone be restored to a quasi-foetal condition. The normally firm bone is thereby shown to consist essentially of a gelatinous element and a bone element, plus blood, blood vessels and nerve elements. If we regard the rachitic infant's condition as one of abnormal nutrition, whether hereditarily predisposed or acquired, and that tooth and bone belong to the

same chemical category, may not the bone phenomena of rachitis, owing to abnormal nutrition, represent a quasi more or less complete starvation of the bones, and misappropriation of the primary essential building-up materials, of the gelatine compound constituting the mould of the bone, and of the earthy more solidifying material? The exudation of the sanguineous jelly found to exist in the anterior and on the surfaces of the most affected portions may excite absorption from the bones of the gelatine case and contained earthy materials. If this be so, may not the unemployed gelatine material appear in the shape of keratin in, and give rise to, the superabundant hair-growth, and the earthy matters appear as phosphatic deposits in the infant's urine?

A CLINICAL STUDY OF ECLAMPSIA.

BY A. M. LEONARD, M.D.

THERE may be found at post mortem in cases of puerperal eclampsia ruptured vessels, but this never occurs unless there has been previous disease of the vessel walls; I cannot remember the report of any autopsy in which there was found congestion of the brain or apoplexy. Curiously anaemia is a frequent symptom, as it is also in the convulsions of Bright's disease, uncomplicated with pregnancy; unfortunately, it is impossible to obtain any evidence from the character of the convulsions, for the epileptiform convulsion, under which head, as distinguished from the hysteroidal and tetanic, the uraemic convulsion is classed, may be due to various causes, including idiopathic epilepsy, peripheral irritations, cardiac failure, organic disease of the brain, including tumors, and even cerebral hemorrhage; also, to the action of certain poisons, and to hysteria, as well as to uraemia. The only proof, therefore, which can be relied upon is the evidence of the presence of renal disease before or after the convulsion, or in case of its absence, at post mortem. I believe that true puerperal eclampsia is due to no other cause than uraemia.

Yet I will acknowledge this fact that while in a majority of cases, eclampsia results from renal complication, it must be admitted that occasionally the convulsions are quite independent of such involvement; but these cases are scarce, and include such as the following: A primipara, in whose urine no albumen nor casts were present previous to confinement, and in whom there was no dropsy, suffers from a long and painful labor; the pains are severe, but insufficient; and the nerves of the uterine tissues have been sorely compressed and bruised, —lashed into fury. At the same time, the nervous centres have been so irritated and become so irritable, that they are not capable of regulating the motions; all regulating power of those centres is lost, and the convulsion follows. The condition is analogous to that of the convulsed teething child, or the child who has eaten something indigestible. These convulsions are not uraemic, but reflex; and it is not impossible also that they may be produced by severe emotion, such as fright; happily they rarely occur more than once or twice, and are as rarely fatal. Reflex convulsions can be under other circumstances fatal, so they may be also under these; while the older observers reported numerous cases as occurring independent of renal complication, which, in consequence of inaccurate methods of investigation, may be regarded as doubtful, such cases as that outlined here have occurred under the observation of trained modern observers, and the absence of the kidney disease been confirmed later. Neither albumen nor casts are essential to a diagnosis of Bright's disease, so that without an autopsy no negative conclusion can be made. Again we must recognize the fact that a few cases of convulsions during childbirth may be the result of epilepsy to which the patient was subject, and hysteroidal convulsions may also appear; any cause which can produce convulsions in the non-puerperal state may produce them during labor, such as meningitis, apoplexy, or a brain tumor, or even sudden loss of blood, yet these cannot be regarded as true puerperal convulsions, for they do not depend upon the puerperal state for their production. With these exceptions, that all cases of eclampsia are renal in their origin, are due to ureamia is my contention.

I claim also that with the growth of our knowledge and of accuracy of investigation, the number of those who believe puerperal convulsions to be due to other causes than uraemia has rapidly diminished, until only a few observers are found among them to-day. I believe that the number of cases in which albuminuria and tube-casts are found, either before or after labor, or both, has greatly increased with more accurate methods of examination and careful testing; and there can be no possible doubt that many reports by the older observers, in which the urine was declared free from albumen and casts, and in which the kidneys were reported normal, were wrong entirely, regarded as necessarily excluding the possibility of a renal. As long ago as 1860, Krassing reported nineteen cases of eclampsia occurring in Vienna, in all of which, save one, there was reason for believing Bright's disease present; and in one case, with sixty paroxysms, yet no albumen was found. Recent studies go farther to show that neither albumen, casts, nor dropsy is necessary for the presence of Bright's disease. This has been one of the most formidable objections to the general accepetance of the view of the renal origin of eclampsia, but it is rendered valueless unless sustained by the results of post mortem. Another argument which has been upheld as being in the way of ascribing puerperal convulsions to uraemia is the disporportionately large number of instances of convulsions as seen in other cases of Bright's disease; thus, it is said that convulsions occur in one-fourth of the cases of albuminuria of pregnancy, which is a much great proportion than is found in albuminuria from other causes. Remember, as against this objection the exalted susceptibility of the nervous system in pregnancy and labor, and the suddenness with which the renal lesions are established, it is no surprise that the lighter grades of uraemia result in convulsions. Function may be preserved for a long time, until the diseased state is suddenly or gradually established, and this is seen nowhere more strikingly than in the nervous system; for brain lesions gradually established, may advance to an extreme degree without producing any symptoms whatever, while slight but sudden alterations in structure are promptly followed by active and alarming signs. Another objection formerly raised against the uraemic origin of eclampsia is the difference in the methods of treatment of the convulsions of childbirth, and of Bright's disease, the former being best treated by bleeding, while blood-letting is rarely employed in genuine Bright's disease. However, the bleeding substitutes the deficient ac-

tion of the kidneys, and removes the principle which is responsible for uraemia from the system. Again bleeding acts more efficiently and promptly in the nephritis of puerperal eclampsia, because in the puerperal condition the kidney is generally less damaged, and with the removal of the cause is enabled to return rapidly to its original state, and resume its function; while in scarlatina nephritis, for instance, by the time the uraemic condition sets in, the organ is too much diseased to again resume its normal anatomy or action.

The question of treatment in eclampsia is a vital one at once, for it involves not only the life of the mother, but her future happiness, and especially those of the child; while in the last stages of pregnancy the eclampsia comes on in some cases so instantaneously and unexpectedly that death ensues quickly. The preservation of the life of the mother, certainly transcends that of the child; still the life of the child is of some value, and it is very desirable to save it if possible. Independent of this enactment, the scientific and practical view resulting from experience, and an experience which is based on faithful and close observation that sanctions and fortifies the performance of an operation, becomes necessary. In early gestation the symptoms of puerperal albuminuria are by no means uniform and clearly characteristic, although in many instances traces of albumen do exist in the urine; the first symptoms are those which are most generally noticed in the head and face, such as impairment of the vision, in its different aspects, is one of the earliest symptoms, associated as it is with some disturbance of the head. Headache and the defective vision are frequently considered of little value, and may be overlooked until the pregnancy is further advanced, when they become quite prominent symptoms, associated with slight oedema of the face, hands and feet possibly. Anasarca of the feet is rarely noticed, and may not exist, even up to the time of labor. Reliance is most usually placed by modern authorities on the recognition of albumen, and possibly on the specific gravity, which is higher or lower, according to the peculiar state of the general system. Should albumen be discovered, it is presumed to be tolerably certain that an incipient affection of the kidney is impending, if not really existing; this, in puerperal albuminuria, may prove to be only temporary, or it may be of a recurrent nature, or become of a permanent character and continue till the end of pregnancy, and might establish chronic renal disease. Happily it proves only temporary, and leaves no disease of the renal organs, as a rule. Albumen is at times a physiological condition in the pregnant woman, but when it is exaggerated it becomes pathological, and in some cases quite early, the early symptoms having been recognized at the second, third, and fourth month; it is, however, more frequent at the fourth and fifth months, and not infrequently proves fatal to the child, the mother being safely delivered; puerperal albuminuria existing in the early months, whether primary or secondary, has a tendency frequently to abort the pregnancy.

As sociologists, we know that pregnancy is a physiological condition; during pregnancy it is recognized that various and decided pathological changes take place, not only in one, but in different organs, and among these none are more generally met with than eclamptic convulsions; we can follow the rule that a pregnant woman in whom no albumen is discovered in the urine during the whole period of gestation, is usually almost certainly to be exempt from having an attack of eclampsia at the time of her labor or afterward, unless the convulsion is the result of some reflex action. Should albumen be found, it is presumptive evidence most generally that a renal hyperaemia exists, or that an important pathological change of the circulating fluid has been produced in the economy of gestation; the function of the secretion takes place in the circulation, and beginning, as it does, in all parts of the economy, by the admixture of various pathological and heterogeneous elements, including urea and other allied substances, it terminates in the kidney by the elimination from the circulation of these effete and noxious principles. Secretion is recognized, therefore, as a general and as a local condition; the function is one thing, and the emnuctory organ is another. The function being the first of all that is chiefly affected, then the integrity of one or more organs of the body will become individually or simultaneously invaded, and in time perceptible changes appear, and even in loss of the life of the child, before any evidence of eclampsia is seen. Assimilation is so active in the foetus that its death could only be explained by supposing it to be through a material change. The important function of secretion in the circulation must be entirely set aside; but to go still farther, and consider that the pathological condition is first in the renal organ, is also to ignore a great variety of very important causes which have a more decided, and equally powerful and corresponding, influence. Pressure by the enlarged uterus on the renal veins, or, on the uteters, is viewed as the chief and principal mechanical cause; yet this view could not obtain in the early months, as the earliest period at which pressure could be effective would be about the sixth month; and this pressure continues till the commencement of labor, and during the process of labor. During gestation, there is most generally a tendency to a diminution of the blood corpuscles, as well as a reduction, very unfortunately, of the albumen in the circulating fluid. It is by no means easy to ascertain when that pathological change has occurred; this change may be aided either by an active or a passive congestion, to which not only the kidney but other organs, are exposed during pregnancy, from the early to a more advanced stage, and more especially at the time of labor; should the alteration of the blood be only moderate, there would be an exemption from eclampsia; should the modification be very decided, eclampsia will be most likely to declare itself, and so forcibly and suddenly in some cases that death in a few moments will follow, no matter whether it is at the third or fourth month of pregnancy, at term, or even after labor is accomplished.

Tyson, in a recent address on this subject, states as follows:

The convulsions of parenchymatous nephritis may be treated by morphine with safety because the renal epithelium is still capable of eliminating it. And since most of the cases of puerperal eclampsia occur in connection with parenchymatous nephritis, it is evident why results are often so brilliant. Should it happen, however, as is sometimes the case, more particularly in cases in which the nephritis has preceded pregnancy that the disease is interstitial nephritis, the use of morphine is attended with large risk.

The second measure alluded to is the treatment of uraemic convulsions by hypodermoclysis or intravenous injection of normal salt solution associated with free sweating and purging, with a view to dilution and elimi-

nation of the toxic agencies which produce the convulsion. I can confirm all that Hirst has said about the value of this treatment, but in order to secure the best results I hold that the sweat should precede the hypodermoclysis; nay, more, I think this is necessary in order to avert a danger which I believe exists in connection with the use of hypodermoclysis, for it is quite possible to overload the venous side of the circulation and thus to dangerously dilate the right heart. Indeed, I am not certain that I have not seen a fatal termination precipitated by such course. If, on the other hand, the blood be first depleted either by blood-letting, and I am certain that we would do well to use blood-letting more frequently in other than puerperal cases, or by sweating and purging, we then make room for the salt solution to be subsequently introduced. The depletion removes a certain amount of toxic matter, while that which remains is further diluted by the salt solution. The sweating and hypodermoclysis may be used daily, and even twice a day in urgent cases. In conclusion, I desire to be understood as still advising caution in the use of morphine in the eclampsia of any form of Bright's disease, but to point out as well the variety in which it may be more safely used.

Narcotics take up our first consideration as remedies for the control of the eclampsia attacks; for experience shows that their effects are generally of a favorable character. The narcosis must be sufficiently profound, for the attacks to cease under their influence; chloroform possesses a potency which it unfolds, highly regarded, especially in Germany; in the language of an able writer, "it most certainly and quickly fulfills the indication to lower the blood pressure, to quiet the convulsive centres, and to suppress such exciting causes as tend to wake reflex irritability." There is danger attending the administration of chloroform when employed immediately after venesection or at any other time. Spiegelberg reports a death occurring under such circumstances. Since the first use of chloroform in the treatment of puerperal convulsions, there have not been wanting many who took ground against its utility; the objections urged against chloroform by its adversaries are enumerated by Charpentier: "(1) In a considerable number of cases, the paroxysms not only do not diminish under the influence of the anaesthetics, but they often appear more frequent and more energetic; if chloroform does arrest the paroxysms, the latter appear during the interval of the inhalations of the anaesthetic, and we cannot keep the woman under the chloroform beyond a certain time without danger to her; chloroform is irrational because it produces congestion of the nervous centres, and can thus only augment the cerebrospinal congestion, which we have already so much to dread in eclampsia; chloroform has the inconvenience of increasing the phenomena of asphyxia in the subjects of eclampsia, already predisposed to this complication; inhalations of chloroform have been followed by the appearance of mania in some eclamptic patients." These objections, it seems to many, are rather the result of a priori reasoning than the conclusions drawn from acute clinical observations; in regard to the objection that it produces congestion of the nervous centres,—there is every reason, on the contrary, to believe that it diminishes arterial tension, and, by controlling muscular action, actually prevents vascular congestion. Sometimes it is required to keep the patient in a condition of narcosis for a long time, and as, in private practice, it may not always be in the power of the physician to procure the services of an assistant, and other important engagements may be pressing, it is very desirable to continue the effect produced by the chloroform by the substitution of another agent. Such an agent we have in the injections of morphine. Another agent which has of iate won for itself a conspicuous place for controlling the eclamptic paroxysms is chloral, having the advantage over choloroform of being more continuous in its action, and not requiring such constant supervision. The success reported by some observers from its use, exceeds that which any other therapeutical means has shown. Froger collected fifty-one observations, in which chloral had alone been employed. Of these cases forty-eight terminated favorably, and only two died, the termination of one case not known; mortality, 4 per cent. Testut reports twenty-nine cases—twenty-seven recovering, one dying, and the termination of one case not being known; a mortality of 3.4 per cent. Delauney reports thirty-four cases, with thirty-three recoveries and one death; a mortality of 2.94 per cent. The mortality, according to these observers, was greater where chloral was used after or concurrently with other lines of treatment. Possibly an explanation of the fact that many physicians have been disappointed in the effects of chloral may be found in the insufficiency of the quantity prescribed; Charpentier gives four grammes in mucilage per rectum, and repeats this dose every five or six hours, so that the patient receives 14 grammes in eighteen or twenty-four hours. A rational mode of treatment is the production of free diaphoresis by means of the hot bath, or by enveloping the patient in a wet sheet and covering her with blankets. Breus, who has made use of hot baths quite extensively, obtained very excellent results. Of late, pilocarpin has been recommended for the same purpose; but the importance of the greatest amount of care in its application is needed. The dangers are that phenomena of suffocation may appear in consequence of the defective expectoration of the mucous. Oedema of the lungs may also be produced, owing to the weak action of the heart, and to the partial closure of the larynx by the enlarged tongue falling back. Should pilocarpin be used it should only be used in the beginning of the disease, when the pulse is strong, the coma not deep, and the respiration entirely unimpeded. Blood letting in eclampsia presents many difficulties in the way of its solution; in order to study this matter let us examine the augments that have been adduced for and against this therapeutical resource by different authorities. Says Scanzoni: "If we are questioned in regard to its utility, we must express ourselves in the most positive manner to this effect, that the convulsions, not rarely, moderate immediately after the withdrawal of blood; that at times, in the milder cases, no other attack occurs, and that the congestion of the brain is often very considerably diminished. As long as the injuriousness of general blood-letting is not demonstrated by more convincing reasons than those hitherto brought forward, we will always proceed to open a vein, if the patient is strong, is not anaemic, and if the extraordinary reddening of the face, the brilliancy of the eyes, the injection of the conjunctiva, the intense pulsation of the carotids, etc., indicate a quite considerable congestion of the brain; and it is a matter of indifference whether this latter was already originally present, or only appeared later as a consequence of respiratory and circulatory disturbances brought about by the convulsions." Spiegelberg, too,

favors venesection. "No means so quickly and certainly lowers arterial pressure; none restores so quickly the function of the kidneys, so sensitive to changes of the blood pressure, and few relax so well the excitd vasomotor nerves." Dr. Barnes says that "it is undoubtedly the most powerful and prompt resource at command for lowering the high vascular tension, a primary cause of the eclampsia." Dr. Barker thinks that "the bleeding is sedative to nervous irritation; it removes the tension from the brain, and protects it from the injury which might otherwise result from the convulsions; it relieves congestion of the kidneys and lungs, and takes off the pressure from the laboring heart; and it may be that it supplements the action of the kidneys, and removes from the blood a portion of its excess of urea." On the other hand, Carl Braun is of the decided conviction that "blood-letting in uraemic eclampsia operates injuriously, because the cyanosis of the face occurring in eclamptic women is only a consequence of the spasm; the hydraemia is still more increased by venesection, and the nervous attacks are not improved; while aggravation of the paroxyms, exhaustion, a fainting fit, and tardy convalescence are not rarely produced by it." Schroeder enumerates his views as follows: "The much recommended venesections I apply only quite exceptionally. They are not indicated on account of the paroxysms in themselves, since they deteriorate the quality of the blood, and the repetition of the attack can be avoided much more certainly by narcotics. In powerful, full-blooded, parturient women, however, with signs of overfilling of the small circulation, a free venesection may be quite necessary." It will thus be seen that the main argument employed by the advocates of venesection involves the postulate that blood-letting rapidly and powerfully lowers blood-pressure. Physiological experiment, on the contrary, demonstrates that blood-pressure cannot be lowered directly by bleeding, unless the quantity removed be dangerously large. Now, as it can be shown by statistical proof that the mortality is very unfavorably affected by copious blood-letting, and as the abstraction of a moderate amount of blood cannot affect blood-pressure, yet in the hands of many observers it has been very successful. Undoubtedly, the best treatment is treat first the convulsion and then, when in shape, induce premature labor, as pointed out recently by Hirst.

CARCINOMA OF THE CHOROID.

Oatman, in the *American Journal of the Medical Sciences,* March, 1900, reports a case of this disease "one of the curiosities of ophthalmology," and reviews the literature. The latter yielded thirty cases which are considered genuine.

The average age was 44.37 years.

Twenty of the primary growths were situated in the breast, three in the lungs, two in the liver, one in the stomach and liver, one in the thyroid, one in a dermoid cyst of the suprarenal body, and two not located.

There were twenty-two female and eleven male cases. This preponderance of three female to one male is not due to influence of sex, but to the greater frequency of carcinoma of the breast among women. One male case had carcinoma of the breast.

Twenty right eyes and nineteen left eyes were affected. This disproves the prevailing theory that the left eye is most frequently invaded.

Both eyes were involved in ten cases. While the deposit of a carcinomatous metastasis in the eye is an extremely rare event, when it occurs in one eye the other eye is also invaded in one-third of the cases. This bilateral peculiarity is ascribed to some unknown factor which ordinarily prevents the development of metastatic carcinoma in the choroids, but in these particular cases it is for some reason in abeyance.

The deposit always occurs posteriorly near the point where a short ciliary artery enters the globe. It appears in the corresponding region of the second eye when the latter is attacked. This indicates that the second eye is not invaded by way of the lymph channels of the optic nerve and chiasm.

The typical shape is a flat discoid thickening of the choroid with a central elevation of two or three millimetres, gradually sloping off to a thin periphery. It spreads laterally, because it is an infiltration of the choroidal lymph spaces with epithelial cells which naturally follow the path of least resistance. Sarcoma, on the contrary, is a growth of the fixed tissues.

The time from the first eye symptoms until vision is destroyed varies between two and eight weeks. The average is about five weeks. This rapid loss of vision is due to an early and extensive detachment of the retina. As choroidal carcinoma is always composed of glandular epithelial cells, it is assumed that their perverted secretion actively assists in producing the amotio retinae.

Tension is increased in one-third and normal or diminished in two-thirds of the cases.

A typical ophthalmoscopic picture is "flat oval deposit or tumor on the temporal side of the nerve, involving the micula, with a central elevation of 3D., its edges gradually fading off into the surrounding fundus. Its color is a dirty yellow, with scattered pigment spots."

The average duration of life after the first symptoms is six and one-half months.

In the differential diagnosis between carcinoma and sarcoma the following points are noted:

Carcinoma of the Choroid.	*Sarcoma of the Choroid.*
Always secondary.	Secondary sarcoma of the choroid is unknown.
Has always occurred posteriorly. Usually on the temporal side of the nerve.	May occur at any point.
A flat discoid tumor or thickening of the choroid which spreads laterally.	It is a rounded protuberance growing out of the vitreous.
Has not been described as appearing vascular.	May appear vascular.

Botanists have recently been investigating the N-rays, and claim that they are emitted from plants as well as from nerves and muscles, and that the fluorescent screen will glow when brought near to the plant, especially the leaves and the roots, where the effect is more pronounced than in the case of the flower. N-rays are emitted from such plants as onions and mushrooms, so that they do not seem to depend upon the presence of chlorophyll or green coloring matter, their intensity being apparently due to the activity and condition of the vegetable protoplasm. This was shown by the fact that the N-rays were produced from germinated seedlings and not from those which had not germinated, while their emission was stopped entirely on using chloroform to suspend the vital activity of the plant.

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NEW YORK, SEPTEMBER, 1904

The nature and soul of things takes in itself the quantity of the fulfillment of every contract, so that honest service cannot come to loss.—EMERSON.

DR. WALTER REED.

AFTER Jenner's discovery probably the greatest boon that medicine has given the world is Reed's demonstration that the complete control of yellow fever is feasible. Aside from the saving of life the financial value of his discovery to the business interests of our own country alone is incalculable. Under former conditions no community, North or South, was exempt from yellow fever. In one "epidemic," states the *New York Sun*, "one-tenth of the population of Philadelphia perished, while New Orleans, then comparatively a small town, gave up eight thousand dead. In 1878, when the Mississippi Valley was sorely stricken, the loss due to the interruption of traffic was more than fifteen millions of dollars."

Dr. Reed accomplished his work thoroughly. Although he died within three years of his great discovery he lived to see Havana, for a century past the hotbed and source of this scourge, exempt from yellow fever. And to-day so absolute is the confidence in the methods he established that persons taken sick after sailing from infected ports are taken to Havana Harbor and carried into the city to be isolated and treated.

In June, 1900, Reed, then major and surgeon in our army, was ordered to Cuba as chairman of the board of experts to study yellow fever.

The general health of Havana and other districts in Cuba improved, as shown by a diminished death-rate; but yellow fever remained unaffected by the efforts of the Board. Reed then investigated carefully the theory of Dr. Carlos Finlay, a Havanese physician, that yellow fever could be conveyed as is malaria from an infected to a non-infected person. Einlay had not been able to demonstrate the truth of this theory; but Reed, trained in laboratory technic, succeeded in doing so. He proved by a wonderful series of experiments that the mosquito was beyond question the medium of infection and that yellow fever could easily be prevented from becoming epidemic; and that the former belief that the infection was conveyed from patient to patient in bedding or clothing or other material, was erroneous. In Reed's crucial experiments persons who had never had yellow fever were induced to subject themselves to exposure—to remain for weeks at a time in beds on which yellow fever patients had died, in contact with the same bed clothing and using the same materials which the deceased had employed. The only precaution was the use of netting or screens to prevent mosquitoes from reaching them. Not a single one of these volunteers took the disease. They were then placed in carefully-sterilized rooms, in which the linen and bedding had been thoroughly disinfected. Mosquitoes that had been allowed to bite yellow fever patients were then allowed to bite those not yet infected. These developed the disease; and the demonstration was complete. All, then, that remained to be done was to isolate by means of mosquito netting each person as soon as there was a suspicion of yellow fever infection.

At the meeting of the American Medical Association in Atlantic City in June, $8,000 was subscribed for the purpose of erecting a statue in bronze to the memory of Walter Reed, who died in Washington on November 23, 1902; $17,000 more are required; and no doubt when others than physicians have come to appreciate the inestimable value of this great man's achievements, the sum lacking will without difficulty be forthcoming.

HOW EARLY IN LIFE CAN A GOOD GENERAL AND MEDICAL EDUCATION BE HAD?

OUR subject became interested in this question, in a very direct and personal way at the age of nineteen, during his sophomore year at college, when he definitely decided to engage in medical work. To abandon the college course seemed a pity, to shirk full medical training—as it existed at that time—would be disgraceful, to subsist any longer than necessary upon the resources of a generous but by no means wealthy father, dishonorable. The problem was solved, in accordance with the lax educational laws of the period by buckling down to hard work, in term and vacation, by taking studies in college which would bear directly upon the medical course and by saving an entire term at college which corresponded to the actual annual session of a fresh-water medical school of the better kind. As the law, at that time allowed graduation after the satisfactory completion of two years' attendance at a medical school, a year's work having previously been done under the more or less severe scrutiny of a preceptor, it was not a difficult matter to secure the medical degree one year after the bachelor's. Indeed, under those conditions, the medical school really offered but one, ungraded, year's course. Students were re-

quired to hear this course twice, at least. As a matter of custom, the better students usually heard it but twice, unless, from previous lack of foresight, they needed the third year's time devoted to some sort of medical study. Following the graduation at this medical school which was by no means a diploma mill, the graduate secured a very favorable position in a comparatively large hospital. Nearly six months were spent in this experience and then followed a post-graduate course in what was then one of the three best medical schools of the country, another school having subsequently increased the three to four. As the regular post-graduate year was, at that time, an unsystematic assemblage of clinics and courses in specialties, the student entered the senior class, which had, like himself, had two previous years of actual attendance on medical lectures and graduated a second time in medicine. Thus, at twenty-four, it was possible to consider one's medical preparation as finished in ample fashion according to the standards of the period.

In extenuation of the laxity of medical laws thus illustrated, the writer would like to be able to add that all this happened fifty years ago. As a matter of fact, the story began only about twenty years ago. Until 1890, the legal qualifications for medical practice in New York State were, by implication, the ability to read and write, though this was not definitely required, one course of five months, at a medical school, attended twice, the dissection, often merely the stripping of half a cadaver, and a very meagre experience in the clinic, hospital ward, chemic and pathologic laboratory. In other words, the only reason that any of us who have reached middle life, are competent to practice medicine, as most of us are, is because of purely voluntary under and post-graduate study.

Our present medical laws, in most states, are quite satisfactory, and some of our better medical institutions have set and are successfully carrying out requirements of an ideal nature. If any criticism is to be made of existing conditions, it is this: *It is not the required but the voluntary work which a man does, that counts in his fulfillment of high professional standards.* And it may be added that *a good physician can never be turned out as a finished product, he must constantly be making himself perfect but he can never reach perfection.*

It would be better to go back to the custom of twenty years ago, and turn out a doctor of medicine with less than a grammar school education and with two hearings of a five-months' lecture course if he has the ferment of self-improvement, than to require a college education, four years of the most approved, graded didactic and laboratory medical training, an eighteen-months' hospital position, six-months' post-graduate study in Germany and then to regard the result as a finished product.

The writer is an ardent advocate of the requirement of a college education for medical men, not because he believes in a literary aristocracy, not because he would be so foolish as to imply that the average physician of to-day, is unprepared for his work, but because he believes that the college course, as it exists in all standard colleges does more than any other factor to encourage the development of the growth-ferment. The high school course comes to a natural educational stopping place, the medical—or any other professional course—deals with facts rather than with mental training. The college course, at any modern university, gives the student an idea of the vastness of education. He is asked to select four years' work out of a possible twenty or fifty. Thus, at the outset, he gets an idea of his own insignificance. Especially in mathematics, he is introduced to whole subjects of which he had never before had a realization; he finds difficulties which neither he nor his teachers can surmount; he learns that the class work does not represent the sum total nor even the major part of what his teachers know but that it is merely an illustration, a sample, of what is worth knowing. He has impressed upon him, as was done, to some degree, in the high school, the idea of doing original research and of pursuing studies without the immediate realization of where those studies will land him.

Certain medical teachers have expressed the same thought as have business men, that they would rather train a high school graduate than a college graduate. With all possible allowance for the fact that some men go to college because they are too lazy to work and that some get into ruts that allow one to become proficient in translating, and familiar with other men's writings, and neglect the more practical and the more strenuous subjects, we believe that the college man is better prepared for the medical course than the man with three or four years' less training, though he may apparently do better in the mechanic performance of laboratory work and may be no quicker at learning anatomy and dosage.

At the meeting of the American Academy of Medicine in 1897, when this important topic was discussed, the following points of view were presented: Dr. Bayard Holmes, representing the medical school, that the medical course was not sufficiently recognized by the university and that college graduates were often discouraged from entering medical practice.

By Ethelbert D. Warford, LL.D., representing (Lafayette) the college: That the college must not be spoiled by ulterior motives of the student and that, if the student should take, first the regular college course, and then the medical course, he would be able to enter practice early enough, that is by the time he was 24. Also, that Greek, Latin and mathematics should be retained as the basis of a college education.

By Dr. Wm. Pepper, nominally representing the university as a unit, though probably voicing his individual opinion, that the best results were obtained by having a man enter his life work in earnest by the age of 21 or 22.

By Dr. James C. Wilson, in discussion, that time must be saved and that it must be saved early in life, so that a student could receive his bachelor's degree at 18 or 19 and graduate in medicine at 22 or 23.

The writer agrees, in a sense, with all of these somewhat varying opinions, but it is evident that a sacrifice must be made somewhere and that we can hope, not to secure the ideals of a thoroughly symmetric scholar entering later upon medical study, of a man thoroughly prepared entering his life work in the full vigor and enthusiasm of youth, of a perfect technically trained physician, but, by compromise, to secure a fairly satisfactory result which may not correspond to any one's ideal, but which shall fulfill the practical demands of the world and not fall too far short of each ideal.

In attempting a practical solution of the problem of producing a well-prepared physician at an early age, we find that it is more and more simple, because less and less possible, the later we begin. Thus, if a man determines on a medical course after the completion of his education in course, four years will be required, beside the time spent in hospital and post-graduate training. If the decision is made at the beginning of the college course, a judicious selection of subjects will enable the candidate to secure both bachelor's and doctor's degree in seven years or, at some universities in six. Granted that the student is diligent and intelligent, there is no reason why the six years' combined course should not be adequate.

If we imagine the case of a young child of good physical health and intellect, whose career can be planned almost from birth, a considerable saving of time can be effected. We hear a good deal about forcing children in school. As a matter of fact, the common experience that most children, including a large proportion from families of foreign birth who are lacking in home education and hereditary intelligence, pass through school life safely shows, not only that our present allotment of time is ample for the average, but that it is considerably more than is needed for children of intelligence, who receive much incidental education in their ordinary home life. There is no reason why a child of favorable heredity and personal development should not finish his grammar school education at twelve and the present high school course at fifteen, instead of at fourteen and eighteen, as at present. But, here a very practical difficulty presents itself. The American college is not adapted to admit boys of fifteen, at least not without considerable modification. We pass over the objection that a maturer mind is necessary to grasp the subjects taught. Our own observation is directly to the contrary. But it is obvious that a boy of fifteen cannot ordinarily be sent away from home and allowed to govern himself so completely as is customary at college. Either the college at least in its first half must be modeled after an English boarding school, or it must conform to the type of the local, American high school. Perhaps this latter method would be better. Indeed, the work commonly required in the freshman and sophomore classes at college is simply an extension of high-school work and needs no special equipment whose expense would be prohibitory.

If our city high-schools continue to expand, they will soon of their own initiative, cover the first half of the present college course. It is partly in recognition of the fact that high-schools have already advanced beyond the point at which they stopped thirty or more years ago, that Columbia has instituted a three-years' college course and not, as has been charged, with the idea of stamping three years' work with the value of four. If the first half of the college course is regularly given in local high-schools, the expense of education will be materially decreased while the efficiency of the college, especially in research, will be as greatly increased.

With such a plan in actual operation, the boy will leave home for college at about the same age as at present—seventeen or eighteen—but he will enter upon more advanced studies. In five years more he will easily have accomplished the work for the college and medical degrees, at least as thoroughly as under existing conditions.

It will be noted that this suggested plan does not require the choice of occupation in infancy. It does require that at an early age the parents of a child must decide that he is to be thoroughly and systematically trained. It requires average health and possibly a little more than average intelligence and industry. In estimating what is meant by average, it must be remembered that our present nine-year grammar-school course is satisfactorily pursued by thousands of children who start without a knowledge of English, who have absolutely no home training in correct speech, spelling, etc., no books at home, no education by travel, and who are often handicapped by insufficient clothing and food and by the necessity of working for the support of the family, instead of studying or whose study is often interfered with solely by lack of heat, light, tables, paper, etc.

The actual choice of a profession may be deferred until the college course is begun or even half done, and still allow graduation in medicine by the age of twenty-two. It will be seen that we are very largely influenced by the opinion, already quoted, of the late Dr. William Pepper and by that of Dr. James C. Wilson. We are aware that these opinions may be com-

batted but, as the decision rests mainly on an appeal to individual judgment and as the arguments that might be used on either side are rather the oratoric presentation of opinions rather than of statistic or other proof, it does not seem expedient to occupy space with them.

KOCH AND TUBERCULOUS CATTLE.

BEFORE 1901 the medical profession were in general accord (much more so than on most subjects) concerning the practical identity of human and bovine tuberculosis. In that year Koch stated, in an international congress in London, that according to his belief the human and bovine varieties were essentially different and not intercommunicable. This statement created no little surprise, in view of the large amount of scientific information that had been gathered up to that time, the gist of which was to demonstrate tuberculosis infection by means of the meat and milk of tuberculous cattle. However, in the light of this opinion, by so great a man and so earnest a worker, it was very desirous that further investigations should be made. And since this memorable meeting much further work has been done upon this subject in America and in Europe, both privately and under official auspices. A royal commission was at once appointed in England. Its findings, but lately published, are quite averse to Koch's views.

If equally competent workers get differing results from their tasks, it might be hard to say why one set of experiments failed and why another succeeded. However, negative testimony must always be less valuable than that which is positive. To discover experimentally if human tuberculosis is transmissable to cattle is easy, though unfortunate for the cattle; this result has been obtained in so many instances that there is no room for doubt in the candid mind. As an odd instance of how such infection may come about indirectly Dr. Darlington, the New York City Health Commissioner, states that in a hospital to which he was visiting physician, consumptives were allowed to play quoits in a pasture near the hospital. At this time they did not use their spit-cups and spat upon the grass. Ten cows grazing in the same pasture were killed, and it was found that nine of them had general tuberculosis. On the other hand deliberately to inoculate human beings for experimental purposes is not feasible, to say the least. However, it has been done, both by accident and intentionally. If disease has positively been transmitted by feeding or inoculated in only a limited number of cases, the fact certainly indicates an alarming possibility. Part of Koch's error lay in that in his researches he looked in the wrong place for effects. He fed tuberculosis human sputum to undoubtedly healthy calves. And when he killed them a few months later he examined their intestinal canals. He could find no signs of disease there, and so inferred the animal had not been infected. Other observers repeated these same tests and did find results of infection by looking for them in other places besides the intestines. Dr. Sidney Martin, of the Commission, did find such results; as did also Ravenel, of Philadelphia, whose investigations are scientific and important in the last degree. Ravenel fed bacillus-laden butter to healthy animals and having killed them shortly after their meal, found bacilli in the products of digestion in the thoracic duct, although the intestinal tract showed no evidence of tubercular infection. Indeed, many experiments have shown that the tubercle bacillus may penetrate the healthy mucous membrane and not leave any indication of its passage. It has become established that the course of ingestive infection is oftentimes through the lacteals (the lymphatic vessels of the intestines), thence to the thoracic duct, and so to the great veins, to the right heart, and finally in the venous capillaries to the air vesicles. The commissioner found, moreover, that of twenty strains of human origin, seven gave rise at once in cattle to acute tuberculosis with widespread infection of lungs, spleen, liver, lymphatic glands, etc. In some instances the disease was of remarkable severity. The other strains, with two exceptions, produced a more or less localized lymphatic infection, with at most a very small amount of tubercle in the lungs and spleen. Tuberculous material, however, taken from the bovine animals thus affected, and introduced successively into other bovine animals, or into guinea pigs, from which bovines were subsequently inoculated, has, in the case of five of these strains, ultimately given rise to general tuberculosis of an intense character. In the case of two strains the disease produced by the inoculation was limited to the spot into which the material was introduced. This occurred in two instances only at the very beginning of the inquiry. The disease thus set up in the bovine animal by material of human origin was compared with that set up in the bovine animal by material of bovine origin; and the one, both in the broad general features, and in its finer histological details, was identical with the other. The Commission failed to discover any character by which the one could be distinguished from the other, and states that its records contain accounts of the necropsies of bovine animals infected with tuberculous material of human origin which might be used as typical descriptions of ordinary bovine tuberculosis.

Again, Koch assumed that bovine tuberculosis could not be transmitted because he found that there are among children an exceedingly small proportion of cases of intestinal tuberculosis. Besides the contradictory considerations here advanced, the possibility of latency in this disease is worthy of note. It is certain that milk may occasion tuberculosis among human consumers. The conclusions of the Commission and of many individual experts are here exceedingly important.

The Commission found that from 25 to 30 per cent. of the milch cows in England were tuberculous. Even in private herds under as perfect care as is possible does this disease exist; in one instance, one-half in a herd of sixteen, the lesions being evident in the slaughtered animals.

The *Lancet,* then, observes quite rightly that the conclusions of the Commission should prevent "the framing or modifying of legislative measures in accordance with the view that human and bovine tubercle bacilli are specifically different from each other, and a wholly different thing from the disease caused by the other."

And we must conclude that the great German is now left practically alone in the position he has taken.

SANATORIA FOR THE TUBERCULOUS POOR.

THERE has been a sudden revulsion of feeling in the medical profession which is extending rapidly to the laity. This change of feeling is the growing belief that tuberculosis can be stamped cut, or, at least, reduced to minimum importance. It is undoubtedly true that our growth of knowledge of the pathology and therapeutics of tuberculosis has not until recently borne fruit. The discoveries of Koch seemed for a time only to create additional pessimism. This was intensified by the failure of his brilliantly conceived tuberculin.

Now, however, we are face to face with the problem of the destruction, or amelioration of the inroads of tuberculosis. As yet, in our form of government, it is necessary to educate the various communities to act for themselves, for this prevention of disease must eventually be sustained and carried out by state or federal action. As Flick has pointed out in a recent article published in the *New York Medical Journal:*

"In the United States little progress has been made as yet in weaving newly discovered truths about the prevention of disease into the fabric of our laws. As a people, we still prefer to look upon disease as a matter between the individual and his God, rather than as a matter between the individual and his neighbor—as something too sacred and personal to be interfered with by any man or by any number of men. We scarcely have begun to get up machinery in any of our forms of government for the prevention of disease.

"Until very recently the only kind of machinery which had been created in our government for the prevention of disease had been what we call boards of health. These are loosely constructed committees or bodies with more or less arbitrary powers, rather legislative in character than executive, and without due responsibility to any one. They have become thorns in the flesh of the people, because they mostly have been in evidence in times of distress and have arrested public attention rather by drastic measures for stamping out epidemics than by preventing such with milder measures beforehand. Only in the United States Government and a few cities of the first class has an effort been made to establish departments of health and to put prevention of disease upon a legal and scientific basis."

It is only fair to the medical profession to state that their inertia up to the present time, has been due to the doubt of being able to cure tuberculosis excepting under the most favorable circumstances. Nowadays, however, we must acknowledge that not only is tuberculosis curable, but that it can be remedied in any climate, and even in the more advanced stages.

These are the foundation stones upon which the cure must be built: (1) all cases of tuberculosis will get well under proper treatment if treatment is begun early enough. (2) The treatment of tuberculosis is so simple that it is within the reach of every patient. (3) Tuberculosis can be cured in any climate. Life in the open, proper food, and well regulated conduct are the essentials. If these three factors can be obtained at home it is not necessary to send patients to sanatoria, and yet, as a rule, patients do better in such institutions, for the discipline is apt to be more rigid.

Tuberculosis is a house disease; the house or the shop is the fostering place, its implantation, growth, maturity and dissemination is from the house, while sunshine, air and water are its natural enemies. It is a well-known fact that sunlight and air kill the tubercle bacillus. Flick estimates that seventy-five per cent. of all cases of tuberculosis that are conveyed from person to person are contracted in the home, while in the other twenty-five per cent. the work shop is responsible.

It is a sad truth that the medical profession is as yet not well prepared to treat tuberculosis. The average hospital connected with medical colleges will not take tuberculosis subjects and are not equipped for the treatment of tuberculosis. For this reason it will be necessary to train experts; Flick suggests this can be done by the establishment of dispensaries for a threefold purpose: To supply material to physicians to equip themselves as experts, to give poor people with tuberculosis an opportunity to recover, and to disseminate knowledge for the prevention of tuberculosis. These dispensaries must not only supply medicines and preventive measure supplies, but food if necessary, and, they must supervise treatment in the homes. They must also be equipped to give baths, sterilize clothes and do laundry work. In this way entrée is obtained into the houses of the tuberculous poor, and it gives a chance for control and instruction. In this way many cases in the early stages of the disease can be caught and given assistance in the way of food, fresh air and cleanliness, and can be cured. It is a common experience that when any one patient from a family may have applied for treatment that several others are found in less advanced stages. Again, it is very important to provide hospital accommodations for dying consumptives, for at that

time preventive measures are difficult, while the sources of contamination are doubled. It is practically impossible in the homes of the poor to keep the places sterile, and therefore, these patients should be removed to hospitals. Unfortunately, hospital managers have a prejudice against these cases, for they do not want their beds occupied by chronic cases. It might be well to establish hospitals in connection with the dispensaries mentioned above.

When it comes to the treatment of cases of tuberculosis in sanatoria we are forced to the conclusion that this is the absolutely essential method of attacking this problem. Poor people will not get the proper treatment at home in ninety-five per cent. of the cases, or, if they can get it, ignorance or indifference will militate against good results. This sanatoria treatment is expensive, being beyond the reach of the average laborer. The food for such a case costs even when bought carefully about four dollars, while care of the abode raises this sum to five dollars. Add in medical attendance, medicine and nursing and the amount approaches ten dollars for weekly expenses.

These sanatoria should be graded; the early cases who can work should not mingle with more advanced cases who cannot labor. Living in the same class of cases the patient in the early stages sees no depressing or unpleasant sights while as all can work, he is stimulated in consequence.

These ideas, properly carried out, cost money, but it will be found that the means will come if the honest effort is made. It is exemplified in Flick's own career; thrown into practice in an old section of a large city his work was for years apparently as hopeless as any human effort could well be; he kept on steadily until one day his views reached the eye of a philanthropic millionaire and to-day the "Phipps Institute" stands as a monument to industry directed in an apparently hopeless direction.

REFINEMENTS IN MILK HANDLING.

THE invasion of medicine into the field of business is extending. Preventive medicine is largely concerned after all with business methods of handling food, drink and sewage—especially is milk a material peculiarly necessary of medical care and thought. Unfortunately milk is a material which is especially suited for the encouragement of bacterial activity. In this soil the simile of the growth and flourishing of the green bay tree is absolutely inadequate to express the conditions as they exist. These bacteria are of a twofold nature: the lactic acid bacteria and putrefactive bacteria. Lactic acid bacteria, which include such organisms as bacillus acidi lactici, micrococcus acidi lactici and baccillus coli communis, thrive in a high temperature, such as the range of a summer day, 70° to 90° F., while the putrefactive bacteria do equally well at a lower temperature. Hence, in hot weather the lactic acid bacteria outgrow the other and render the milk acid. The putrefactive bacteria work slowly and require a lower temperature to show their superiority of action.

When it comes to the marketing of this unstable product, the commercial world finds a sea of troubles. Nowadays dairy commissioners are demanding systematic cleaning of cans, improved stables and milk houses, rapid cooling of milk at the farm, etc. This increases the cost of the product and requires far greater care on the part of the milk handlers. A standard has been placed on the bacteriological requirements so that pediatric milk must show less than 10,000 bacteria to the cubic centimetre while some cities have set a standard for all milk at about 100,000 per c. c. This standard has materially aided in improving the health of these communities. In ten years' time the percentage of deaths in Chicago, New York and Philadelphia from gastric intestinal causes has markedly decreased, while infant mortality has dropped still further. There is, of course, room for improvement, but the fact that improvement has already appeared shows that the battle is more than half over.

The Laboratory of Hygiene of the University of Pennsylvania has taken up this subject lately and in the August issue of the *University of Pennsylvania Bulletin* reports in a series of papers some excellent results. Bergey studies the milk from its first appearance in the farmer's pail until it reaches the consumer. He found that it is often difficult to obtain milk from the udder that is free from bacteria. The "fore milk" always contains bacteria which gains entrance to the orifice of the teat, frequently penetrating into the milk cistern. He found by discarding the fore milk it was possible to secure sterile milk in about thirty per cent. of healthy cows. He tried the plan of collecting milk from each quarter of the udder and found that the bacteria varied most tremendously. In one case, in milk from the right front teat no bacteria was found while from the left front teat, the milk contained 34,400 per c. c. In cases where there was catarrhal inflammation of one or more quarters of the udder, the number of the bacteria may vary largely.

The most fruitful sources of bacteria are, however, the various utensils used in collecting and storing the milk. Taking milk that was sterile Bergey found that fifty bacteria per c. c. came from the milk bucket, 4,000 from the can, 3,100 from the strainer, 3,900 from the cooler and 9,800 from the tank below the cooler. In other words, there is an increase in bacteria with each utensil with which the milk comes in contact. Again bacteria come from the cow's fur and exterior of its udder in proportion to its cleanliness. So it is with the hands and clothing of the milker. Again the ventilation of the cow stables and the character of the bed-

ding are important. If cows are fed prior to or during milking with dry dusty fodder, it increases the contamination.

The milk dealer has had an easy, adequate solution for all these bacterial troubles in milk; it has been the addition of some efficient germicide. The popular drug at the moment is formaldehyde masquerading under the name of "freezaline," "preservaline," "formol," etc. This drug has extraordinary power in reducing the bacteria in milk. For example, Rivas in the same laboratory added formaldehyde in the proportion of one to a thousand, one to ten thousand, etc., and made tests in twenty-four and forty-eight hours. In one sample of milk that was left at refrigerator temperature for forty-eight hours, there were only 135 bacteria, when treated by formaldehyde one to a thousand, while in one to ten thousand solutions there were one million bacteria; in one to fifty thousand, thirty million bacteria and in one to a hundred thousand, forty-two million bacteria which was the same amount as in normal milk in control experiment. As the days rolled by, formaldehyde grows still better in its work; in three or four days milk treated by formaldehyde contains no bacteria at all, becoming absolutely sterile. What an ideal drug for the practical dairymen if human stomachs could only stand it! Unfortunately formaldehyde treats human tissue almost as roughly as it does the designing bacillus and the milk handler has produced a product which the papers have well termed "embalmed milk." Again, Rivas has demonstrated a fact that has puzzled many chemists in examining milk. It is the curious property that the effects of formaldehyde remain after all chemical tests for its presence fail. Chemists have found milk that did not seem to sour and yet which failed to show the presence of any preservative. It is due to this curious fact. Given a suspected milk with a low number of bacteria and yet with the fact that it is not of recent milking and it is a positive truth that the milk has been embalmed even if it fails to respond to any test for formaldehyde. This is an important fact which our food inspectors must not forget.

Rice is commonly supposed to be deficient in muscle-making qualities, and yet the Japanese, whose chief and almost only food is rice, are noted for their physical strength, and in the late advance on Pekin outstripped the armies of Russia, Germany, France and America. The explanation of this, obtained recently from the Agricultural Department at Washington, is very simple. The Japanese and other rice-eating nations do not polish the grain except for export. In American mills the outside coating of the rice kernel is rubbed off. The outer husk and the bran just within it are removed, and then the kernel is rubbed to remove the rough protein surface. This is called polishing and the process not only removes one of the most nutritious substances in all cereals, but deprives the grain of about three-fourths of its flavor.

INSURANCE FOR PHYSICIANS.

BECAUSE of the ethics of their profession, states the *New York Evening Post*, medical men are oftentimes in a peculiarly helpless position to defend themselves against a certain class of sharpers and blackmailers who make a practice of bringing malpractice suits, alleging negligence or incompetence. Those who seek to fleece hope for a compromise settlement out of court, knowing the hesitancy which reputable physicians feel in having their names exploited in connection with such cases. Others bring suits to avoid paying their bills, hoping to frighten the medical man—and often succeeding. Malpractice is a word that has come to have a restricted and most sinister meaning to the general public, and justly or unjustly no member of the faculty wants to have the imputation laid upon him.

The prevalence of such schemes, in which swindlers and sharpers display their talents, has brought into existence the new form of accident insurance, of which many doctors have wisely availed themselves. Casualty companies now offer to issue liability policies to physicians, surgeons, and dentists against malpractice suits. In these policies the insurance company agrees to defend all such suits brought against their clients, and to hold itself liable for the amount of damages, if any, should the case be decided adversely. To guard against disreputable practitioners the policies contain paragraphs like the following:

"The company shall not be liable under this policy for any injuries, fatal or non-fatal, resulting from the violation of any law or ordinance on the part of the assured, nor if any alleged error, mistake or malpractice has occurred while the assured is more or less under the influence of intoxicants, anæsthetics or narcotics."

It is where criminal operations are concerned that reputable physicians are most in danger. Any physician may be called upon to see a patient suffering from the more or less disastrous results of an attempted criminal abortion. If he has the slightest ground for suspicion, the physician would do well in such cases not to make any examination, digital or other, except in the presence of a colleague. Nor should he induce an abortion, however legitimate the object, without consultation and professional assistance. The following case is a propos:

A poor girl in New York City became pregnant. There was an abortion at about the fourth month, how induced has never been known, followed by septicaemia and death. The autopsy showed the cause of death to have been puerperal septicaemia. Decomposed placental tissue was found in the uterus, but there was no mark of instrumental violence. Shortly before her death the girl, in an evidently half-demented state, made an antemortem statement, in which she named a physician, whom she accused of having operated on her. The ac-

cused physician declared that, although the girl had called at his office, he had seen her but once, and that, on finding her errand to be to importune him to induce an abortion, he had absolutely refused to treat her, that he had not even prescribed for her, and that he had not examined her, either by digital examination or by the use of instruments, or in any way whatever. Unfortunately for him, no third person was present at this office visit. He was arrested and imprisoned. He was for a long time under bonds; his name was exploited in the public press in connection with the case—and such is human nature and public opinion that a man may have the heart and soul of an archangel and it will not, so long as he lives, avail him against imputation of taint—and he had to pay heavily, without hope of remedy, for the services of counsel, not to speak of loss of time, the injury to his practice, and the great mental strain to which he must have been put. Finally, after a number of weeks, his case came up before the grand jury, and that body, in refusing to indict him, placed the guarantee of the law upon the truth of his statement, and—to the extent of its influence—established his innocence. This extraordinary case teemed with tragic elements. The girl's brother shot her alleged seducer upon the crowded thoroughfare. He was tried and escaped electrocution. The father of the girl, an old man, died of a broken heart during the son's trial.

THE NEGATION OF THE WILL-TO-LIVE.

OFFICIAL figures exhibit a marked increase in the number of suicides in New York City. During the first quarter of this year there were 208 successful attempts. Over 450 deaths are estimated for the first six months of 1904. There were 264 unsuccessful attempts at suicide; probably most of these thought better of it before they reached the fatal point. Many a man's determination will weaken before he takes the plunge into the unknown. It is reckoned that this year's total of suicides will exceed 900, as against 806 of last year, 772 in 1902, 678 in 1901, and 743 in 1900. This increase is not due only to the natural growth of the population; the statistics show that the actual ratio of suicides to population is increasing also.

Of last year's aggregate of 806, 35 per cent. were native born, 26 per cent. were German, and less than 7 per cent. were Irish. This is a remarkable showing for the latter nationality, considering the large proportion of citizens of Irish birth. The percentage of Germans is not large, for of that people a singularly large proportion commit suicide. How can one escape the tendency after reading Schopenhauer and Hegel?

The favorite method of shuffling off (47 per cent.) is to take poison—usually carbolic acid. This is extraordinary, in view of the hideous torture this acid inflicts when swallowed. However, it is cheap and easily obtained. Sixteen per cent. use illuminating gas; 20 per cent. shoot themselves; and 8 per cent. hang themselves. A curious tendency among women is to throw themselves out of windows—quite curious, in view of Emerson's observation that many women would commit suicide if it were not that they feared the way they would look after death. There is certainly no object so dreadful as to see a mangled, crushed, misshapen mass, fallen from a height, such as, but a moment before, was a human being.

There are most suicides in April, May and June; why is not very clear. Holidays, periods of business depression and of great political excitement, are usually followed by many suicides.

However, the suicide rate of New York City is still far below that of the great European cities; indeed, about two-thirds of our suicides are foreign-born. We have a law making attempts at suicide a felony. It does not seem to be effective as a deterrent. It is naturally unenforcable in the case of the successful suicide.

THE HARVEIAN "DISCOVERY."

DR. CATON, in his oration at the Royal College of Physicians, London, stated his opinion that Harvey, in his discovery of the circulation, had been anticipated some 6,000 years ago by the priest-doctors of Egypt. Four thousand years before our era had appeared good works on medicine and anatomy; and there was at least one brilliant medical genius, I-em-hotep, priest of the sun god Pa, and physician to King Torsothros, who became so eminent that he was revered as a demi-god after death and had a temple built over his tomb, and various hospitals erected in his memory. Besides being physician and priest, he was also architect, astronomer, alchemist—an all-round genius, in short. Probably these Egyptian physicians—so Dr. Caton thinks—were the first men to acquire a rudimentary knowledge of the movements of the blood. The papyri contain intelligent references to the heart, the blood vessels and the pulse. Their writings refer to enlargement of the heart, fatty degenerations, displacements, palpitation, and pericardial effusion. It is observed that distension of the heart and shortness of breath occur because the blood has stagnated and does not circulate properly. "Not Greece, therefore, but Egypt, long before Galen and Hippocrates, was the motherland of rational medicine." The views of the Greeks on the circulation were almost exactly those which had been taught by the Egyptians many centuries earlier. The method of letting the heart have as much rest as possible was recommended in Egypt some 4,000 years ago.

And Harvey, moreover, had immediate predecessors in the knowledge of the circulation. For Servetus, seventy-five years before his time, declared that the heart pumped the blood through the lungs, and told correctly why it was done; and his account, according

to *American Medicine,* was "quite as complete and vastly more lucid than the verbose and muddled one" of Harvey. Servetus, like our Egyptian confrere, knew many things besides medicine. Unfortunately for himself, he expressed such theological views as moved the pious Calvin to have him burned for the good of his soul. However, he had managed to put a lot of his medical views on paper; and these writings somehow escaped Calvin's amiable desire to burn the manuscripts along with their author. Then again, Cesaepine, a Venetian pathologist, went over much the same ground, and added some interesting anatomical details concerning the cardiac valves and their action. And it was after a visit to Italy that Harvey announced his discovery, which was avowedly based on facts learned there. Harvey was the first Englishman, it seems, to publish information that had been for some time current in Continental medical circles.

Indeed, it is hard to believe how men could ever have been entirely ignorant of the action of the heart and of the motion of the blood. These things must have been revealed when men first began to slay each other with cutting weapons. We venture the opinion that a knowlelge of the circulation of the blood was aeons old even in the time of I-em-hotep.

PROSTATIC HYPERTROPHY—PHILOSOPHY OF ITS SUCCESSFUL TREATMENT.

IT has long been known that the part played by the enlarged prostate from its earliest symptoms until death closes the scene is purely mechanical. This being taken as established, George W. Hawley (*Ann. of Surg.,* November, 1903) concludes from an analysis of the problem involved (1) that it is not the prostate, but the adjacent urinary tract which demands treatment; (2) that the direct cause of the interference with the urinary evacuation is the displacement of the outlet of the bladder resulting from enlargement of the retrourethral portion of the prostate; (3) that until the precise cause of prostatic overgrowth is known and successful preventive measures employed, one can only hope to relieve this condition by correcting the displacement; (4) that until an effectual method is devised, which is sufficiently safe and simple for application, before infection and disorganization of the urethral tract have resulted, surgery cannot bring any great relief; (5) that the logical mode of correcting vesico-urethral displacement by reduction is evinced by the fact that operative methods improve urinary evacuation by virtue of their power to reduce this displacement; (6) that while some of the methods partially, sometimes completely, accomplish reduction with comparative safety, and others entirely reduce it, but at considerable risk, none does so with both safety and success; (7) that since the reduction of the vesico-urethral elevation is essentially a mechanical problem, reduction based on anatomical and mechanical processes should prove the simplest and safest. No method can be successful which does not permit of complete reduction for all grades of elevation. The operations of Drs. E. W. Andrews and H. Delageniere are based upon correct principles, but do not go far enough. The author describes in detail a more complete technic for the downward reduction without injury to the bladder and urethra.

SIR WILLIAM MACGREGOR, M.D.

The new Governor of Newfoundland, the possessor of this fine old Scotch name, is a remarkable man both intellectually and physically. The New York Tribune states that because of a feat, in which he exhibited great muscular strength, the Albert Medal (the civilian equivalent of the Victoria Cross) was bestowed upon him by the late Queen. While stationed in the Pacific, with headquarters at Inra in the Pacific, a ship containing many coolies was wrecked in such a way that she became stuck on a reef at the foot of a precipice. Being pounded to pieces by the surf, the only way to reach her was by means of ropes and a broken mast, which had fallen against the side of the cliff. Sir William made the perilous trip to and fro a number of times, carrying a man or a woman on his back, and sometimes taking a child by its clothes in his teeth for an additional burden. His greatest load was a white woman who had got at the spirits, was mad with drink, and had fallen overboard; and the captain of the ship and a police officer who had gone after her and were being swept out to sea. Sir William caused himself to be let down by a rope, caught the knot of the woman's hair in his teeth, and with his hands seized the two men and thus dragged all three to safety.

Sir William is a Scotch physician—from Glasgow. He has been resident physician and superintendent of the Royal Lunatic Asylum at Aberdeen; chief medical officer at Seychelles Islands, at Mauritus, and at the Fiji Islands; High Commissioner for England's possessions in the Pacific; for seven years Governor of British New Guinea; and for the last five years Governor of Lagor and High Commissioner for the native protectorate on the west coast of Africa. His promotion to the governorship of Newfoundland is therefore a well-earned reward, after many years' hard service in tropical climates.

THE ROCKEFELLER INSTITUTE.

This Institute of Medical Research, of which Dr. William H. Welch, of Johns Hopkins is President, is having a new laboratory built on Exterior street, east of Avenue A. It is to be five stories high, 136 feet wide and 60 feet deep, with a facade of limestone and brick, decorated with pilasters of brick and having a porch entrance flanked with decorative columns for the support of electric lights. The first floor will contain an assembly hall, a library and study, and the directors' room. The upper floors will contain a series of large general and special laboratories and research rooms. The top floor will have a dining hall and living quarters, and the roof will have a special operating room and quarters for the animals under exaxmination. A two-story building for animals and for electric power will adjoin the main structure. The whole will cost $325,000.

RETROSPECTIVE THERAPEUTICS

Alcohol a Cause of Locomotor Ataxia.—It is generally considered that syphilis is the main cause of tabes, yet tabes is a very rare disease among women, though syphilis is not uncommon. Erb's statistics gave 19 cases of tabes among women to 350 in men; Fournier found the proportion one to 26, while Mendel found it one to four. Fournier also found that 95 per cent. of tabetics were syphilitic, while Berger found only 20 per cent. and Remak 23 per cent. Yet syphilitic lesions, even those of the central nervous system, are comparatively easy to cure, while tabes is practically incurable. Papadopoulos (*Prog. Med.*, March 5, 1904), has practised twenty years in Asia Minor where syphilitics among women as well as among men, are particularly common, and where, because of inefficient treatment at the outset, tertiary lesions are usual, and of the marked type rarely seen in Europe. And yet locomotor ataxia is practically unknown among women, and exceedingly rare among men. In the Orient alcoholism is rare; everybody drinks water. Practically, the only liquors to be had are wine, raki and brandy, and these are taken only on special occasions. Wine is prohibited to the Mohammedans, though raki and brandy are allowed; the Christians of Asia Minor are teetotalers, and among the Mussulmans alcoholic drinks are not used. At the same time locomotor ataxia is quite rare. So, it is difficult to believe that locomotor ataxia owes its origin to syphilis, while one may be readily led to believe that alcohol is an important factor in the production of tabes.

A Simple Method of Examining the Stools for Gall-Stones or Other Solid Bodies.—Lilienthal (*Med. Record*, January 9, 1904), thus describes a simple method which takes away many of the disagreeable features of examining the stools for solid bodies. Take a loop of telegraph wire, a few inches greater in diameter than the entire top of the closet seat, and fasten to this a bag of at least two thicknesses of dressing gauze or mosquito netting. The bag may be sewed to the wire or simply held by safety-pins, but it should be made very full, so that when the loop is placed the wire shall be well below the level of the seat and the bag shall hang down well into the water at the bottom of the bowl.

If the patient is not confined to bed he defecates into the closet, and then simply opens the water valve long enough to wash away all but solid bodies. If the patient is confined to bed the stool can be carried to the closet. In rural districts the same procedure may be followed, except that the water must be carried to the privy and poured through by hand.

The principal advantage of this method, especially in city practice, is that the patient himself may be trusted to make an absolute accurate examination. The author has been able to confirm a diagnosis of cholelithiasis from tiny faceted stones considerably smaller than a mustard seed, which had been discovered in the stools by the patient.

Infection of Wounds from Speaking during Operations.—Mendes DeLeon (*Arch. F. Klin. Chir.*) arranged a box with agar plates on the abdomen and spoke over it the words usually said during the course of a laparotomy, a total of 60 to 100 or 200 words—all the conditions approximating those of a major operation. He estimates that there were at least 4,375 microorganisms in every drop of saliva. Four kinds of bacteria developed on the plates, streptococci, diplococci, staphylococci and sarcinae. Some of the streptococci proved very virulent, more so than streptococci in the saliva in the mouth. He thinks that more attention should be paid to the danger of infection from this source, and advocates the use of a mouth mask he has invented to obviate it. He gives details of inoculation of 61 animals with the agar from plates over which the same words were spoken as had been used in some preceding operations (Dutch and German). His mouth mask is made of fine wire netting in the shape of a roomy cap or box, fitting over the mouth and part of the cheeks. There is a layer of cotton between the top of the box and its perforated cover. The mask is very light and is held in position by a spring around the ears like spectacles.

Oxygen Inhalation for Vomiting.—It is stated that in the various forms of persisting vomiting, functional, reflex, and organic, no other means has proved so uniformly effectual as inhalation of oxygen. It is perfectly harmless under all conditions, requires no effort on the part of the patient, and involves no suffering or disagreeable after-effects. Being administered by the lungs, it not only acts independently of vomiting, which may continue for a time, but is peculiarly serviceable in such cases as those of gastric neurosis, irritability, inflammation or ulcer, in which it is undesirable or useless to introduce anything into the stomach, or after laparotomy, when, in addition to this, retching is particularly obnoxious.

Typhoid Infection from Railroad Car Closets.—In the *Va. Med. Semi-Monthly*, February 12, there is a paper by Barringer, in which he discusses the importance of the present closet system in our passenger coaches in its relation to the dissemination of typhoid fever.

Some of the facts that give weight to the writer's suggestions are: (1) typhoid is most common at the age when the tendency to railway travel is greatest; (2) patients suffering from typhoid in the incipient stages are often sent to their homes, involving frequently railway journeys of some distance; (3) railway employees, especially trackmen, are very subject to typhoid; (4) in all cars at present used on American railways for passenger travel, the dejecta from the closets are strewn along the track-bed; (5) in this way it readily becomes a highly infected strip across the country, poisoning by the dust raised by passing trains and by the washing by rain into streams and springs.

This matter becomes of great importance, especially in thickly populated districts, where the railway passenger traffic is heavy.

Relation of Fat Foods and Adipose Tissue to the Production of Tuberculosis.—Dr. Thomas Bassett Keyes (*Med. Brief*, Aug., 1904), writing on the above topic, quotes approvingly from an article by David J. Brakenridge, M.D., published in the *Medical Times* as far back as 1868, "On the Influence of a Digestive Habit on the Production of Tuberculosis, and the Indications for Treatment Drawn Therefrom." "Among other things to say: 'Many authorities are now amongst the number of those who believe that the immediate cause of tuberculosis is a deficiency in the chyle of those oily matters which, together with albumen, are essential to the formation of a true nutritive blastema. Most physicians, if they do not go so far, are at least of the opinion that deficiency of fats is, in some manner or

other, at the root of this condition, and that in the means of supplying this deficiency lies the hope of its successful treatment. In the great majority of cases there is a marked dislike of and want of power to digest fats, and every effort is made by tonics and other means to overcome this dislike; too often in vain, or with only partial success.' No more truer observations of tuberculosis could be made than these. Further, he says:

"'1. The digestion and non-digestion of different kinds of food may and do become habitual.

"'2. The condition of body favoring the development of tuberculosis is a habit of non-digestion of fat.

"'3. The causes of this habit are such conditions as diminish the consumption of and consequent demand for fat in the system, *e. g.*, warmth, impure air, want of exercise, etc.

"'4. In the treatment of this condition, the indications are to break the habit, and to restore the lost power of digestion of oil.

"'5. This will best be done by supplying in increased force what we find to be the chief stimulants to the digestion of fat, *e. g.*, cold, pure air, exercise, etc., and by avoiding all that would tend to confirm the bad habit.

"'Summer is, therefore, more to be dreaded than winter in the tubercular diathesis, and safety to be sought rather in choosing a cool, bracing climate in the former season than in the opposite and usual course.'"

Dietetic Treatment of Nephritis.—The diet which Dr. Victor C. Vaughan has found most serviceable in chronic nephritis is, with the exception of cream and butter, wholly vegetable. He forbids meat in every form, eggs and milk. The object he desires to accomplish is to profoundly alter the proteids in the circulating blood, and both theoretically and clinically he believes he has the best of reasons for the selection of this diet. The urine for twenty-four hours should be collected and the quantity of albumin in it should be accurately determined, and the result expressed both absolutely and in percentage. At the same time the amount of urea and of total nitrogen should be ascertained. Then the patient should be placed on the diet and after three days or longer, corresponding analyses should be made. The diet permits cream, which should be separated from the milk as completely as possible, and should not contain more than one per cent. of proteid, and the amount of cream allowed per day is limited to ·500 grams, or one pint. Corn meal mush is preferred among the cereals, and this is allowed *ad libitum*, and oatmeal or cracked wheat may be substituted. Sugar is allowed *ad libitum* for the mush, and zweiback and butter and potatoes complete the substantials of the ration, although peas and beans, fresh or canned, green vegetables, fruits and melons, are permitted. There is no difficulty in living on such a diet, and after a few weeks patients lose all desire for meat and eggs, and wonder why they were formerly so fond of them. This ration furnishes more than 3,000 calories, and we have taken no account of fruits and melons. Furthermore, the proteids can be increased by substituting in part legumins for cereals, or by substituting oatmeal or wheat for the corn meal. Hard working men live on this diet with ease, and at the same time the amount of albumin in the urine is gradually decreased.

The selection of a diet in chronic nephritis is quite as important as it is in diabetes, and in the management of both these diseases diet has been found the most important thing.

Dietetic Treatment of Skin Diseases.—Lassar (*Dermatologische Zeitschrift*) states that dietetic measures are of the greatest importance for the cure of various cutaneous affections. Psoriasis, for instance, is unmistakably benefited by refraining from meat. Cheese is liable to aggravate certain skin diseases or possibly induce them. The subject must learn what articles of food he must avoid, and should strive to eat at regular intervals and in small amounts. A single hastily eaten meal when he is overfatigued, overheated or irritated, may affect him like ingesta containing ptomains. In case of prurigo the nervous system must be soothed and sleep restored. Eczema frequently develops after the prurigo, and both may be avoided by keeping the bowels in good order, avoiding excess of bread and potatoes, and all other causes tending to induce flatulence. Prurigo patients are usually constipated, with hard stools. The tendency to furuncles and phlegmons in diabetic and gouty subjects may be combated by putting the patients on a sugar-starvation diet. So soon as all substances are avoided that form or become transformed into sugar, the tendency to furuncles subsides. The excess of sugar in the tissues affords fine culture media for the pyogenic germs. When this excess is avoided the germs cease to colonize in them, irrespective of whether the elimination of sugar is physiologic or pathologic. The same reasoning and conclusions apply also to uric acid in gout. Any intoxication may affect the skin and reduce its resisting power. He defines scrofula as a lessened resisting power due to inherited weakness and insufficient nourishment or care, and insists that everything which tends to enhance the resisting powers aids in curing the local affection. Obese subjects should diet to reduce their weight, and by this means avoid cutaneous lesions from friction between folds of the skin, etc.

Kumys.—According to Dr. L. Freyburger, *Treatment*, February, 1904, kumys is a sparkling beverage made of mare's or skimmed cow's milk. *Genuine* kumys contains about two per cent. of albumens and peptones, 1½ per cent. of sugar, 8 per cent. of lactic acid, 1¾ per cent. of alcohol, and from 0.2 to 0.3 per cent. of salts. *Cow's milk* kumys contains 3¾ per cent. of albumen and peptone, 2 per cent. of fat, 1⅛ per cent. of sugar, 0.6 per cent. of lactic acid, 1 per cent. of carbonic acid, 2 per cent. of alcohol, and ½ per cent. of salts. The longer the milk is allowed to ferment the more alcohol and carbonic acid is produced; up to about 2¾ per cent. of either may be found in kumys 36 hours old.

As distinguished from kefir, kumys is stimulant as well as nutrient; old kumys may even produce a condition of alcoholic intoxication.

Patients with a tendency to diarrhea, and children, bear kefir better than kumys; young kumys is more laxative, old kumys more constipating. Where it is well borne, the nutrient and appetizing effect of kumys will very soon become evident. In cases of anemia, wasting diseases generally, pleuritic effusions, and chronic bronchitis kumys is indicated; but where there is a tendency to hemoptysis or internal hemorrhage, gastric ulcer, cystitis, nephritis, apolexy, or during pregnancy, kumys should not be ordered.

Condensed Milk to be Investigated.—The Agricultural Experiment Station of the University of Wisconsin will conduct a series of tests to ascertain the nutritive qualities of condensed milk sold in that state. The best brands of condensed milk are made by a secret process, and the object of the experiments will be to ascertain

what foreign ingredients are used. A certain manufacturer has prepared an emulsified fat to be added to skimmed milk, and to all appearances it meets the required standard of proportionate material regarding fats and nutritive ingredients.

When such food is given to babies indiscriminately it does not supply proper nutrition, thus causing rickets, anemia and other difficulties due to lack of nourishing food.

Cultivating Iron in Spinach.—Interesting experiments are being conducted at the Agricultural Bacteriological Station of Vienna. It is a well-known fact that salts of iron are of great importance for the human system. The artificially prepared foods containing iron which are introduced into the human body have not always the desired effect because the quantities of iron contained therein, even if considerable, are not completely assimilated.

According to modern ideas, the human body may also supply its want of iron from vegetable foods, and it is expected that by increasing the quantity of iron in certain vegetables it will be possible to procure a natural means of supplying the human system with a nutriment rich in iron and easily assimilated. The first experiment was made with spinach, by adding hydrate of iron to the soil. The spinach grown from seed showed a percentage of iron seven times as great as ordinary spinach, without injury to the plant. This is considered a very favorable result, as the iron contents are perfectly sufficient for medicinal purposes and in a form which possesses none of the defects of the best artificial iron preparations. It is presumed that other plants rich in iron will yield similar results, so that not only the science of medicine will be benefited, but the gardeners will also find their cultivation a source of profit. Manganese and other minerals might also be worked in.

Unbreakable Tableware.—United States Consul McNally, Liege, Belgium, reports that the Company Du Val-St.-Lambert, of Liege, is making a hardened crystal dish which in appearance closely resembles translucent china of uniform shape and manufacture. The resistance to shocks and sudden changes of temperature of this product is remarkable indeed. A hardened crystal dish can be substituted for a hammer in driving nails into wood, while the tableware can be put into boiling water at a high degree, then plunged into ice-water repeatedly, without the least noticeable damage to the dish or plate.

It is known that a set of this dish ware has been in use in a family here for ten years, and, with the exception of a few unusual local accidents, the set presents the same fresh appearance as when it came from the factory.

The writer has seen plates, of the usual form, of this hardened ware hurled to the stone floor of a warehouse and go bounding along the whole length of the building without suffering the least damage.

The same firm makes glassware of the same corresponding resistance. The color of the hardened crystal ware is of a blue-white and not of the pure whiteness of porcelain.

Prof. W. A. B. Sellman, of Baltimore, in his operations for lacerated perineum, prefers a dressing of flexible collodion, which has the advantage of preventing infection of the wound, and of protecting it from the action of the lochia, when operating after childbirth.

CORRESPONDENCE

MEDICAL ETHICS.

To the Editor of THE MEDICAL TIMES:

Queen's University, Kingston, Ontario, is to establish a series of lectures at its next session on Medical Ethics, and the book, *Medical Ethics and Cognate Subjects*, recently published by Dr. Sprague, of Stirling, Ont., Examiner in Mat. Med. for the Coll. Phys. and Surgs., Ont., has had much to do in making such a course necessary. (The father of the doctor, aged 89 years, is in extremely active health, and is a native of Hempstead, Long Island, N. Y.)

Dr. Benedict, of Buffalo, N. Y., who was an honored guest of our Canadian Medical Association in August, 1903, in an article referring to his pleasant meeting with us, refers to *our* Osler,—we, Canadians, claim Osler, for although with you at Johns Hopkins, yet he was born in this province, was educated at McGill and at Trinity. We in Canada have a few *nearly* as good as Oster, *e.g.*, Lapthorn Smith, Buller, Adamic, Geikie, and you have about as many.

Almanacoid should be applied to such medical journals that have the characteristics of almanacs, and such journals have been well brought to the notice of the *Medical World's* subscribers, and yet it has, in the opinion, probably of keen students, its sheets not too clear of proprietary advertisements—and recommendations.

The Coll. Phys. and Surgs. (the licensing body of this Province of Ontario) requires four sessions of eight months each—and an extra year at hospitals for its License. Samples of examination papers presented at May examination I enclose. Requirements are equal to those of the Royal colleges of Great Britain and Ireland.

The Canadian Medical Association will meet at Vancouver, B. C., August 23. More than thirty papers are promised. Drs. Edwards, of Grand Rapids, Mich., and Mayo, Rochester, Minn., are named.

The transactions and papers read at all General Medical Associations should be published in pamphlet form, so that all who either were present or were not present could be informed. In Canada the rule is, and has been for some journals to ask for the exclusive right of publication, so unless one take all the journals he cannot read the addresses. Is this not Chauvinism?

If at each national medical convention more papers were presented as relate to the general and best interests of the profession, much good would be done, for the profession is crying for Martin Luthers. Papers should be read by a committee previous to the meeting, or before being announced, and such as illustrate too much of personal interest or business, rather than cosmopolitan interests, should be returned. Our journals have too much of this sickening stuff (it cannot be called literature).

If each state in the Union would exact medical laws such as New York, it would not be long before a National License could be secured. To compare a New York license with those of some eight or ten states is

as a comparison of Harvard University with *National University*, Chicago, Dr. Harkins, President, or Central University, Indianapolis, Ind., or Rush Medical College, Chicago, with eight or more of its sister colleges.

JAMES S. SPRAGUE, M.D.
Stirling, Ontario, Canada.
July 18, 1904.

DR. JOSEPH WEINER.

Dr. Weiner died in New York city on August 11th, after an illness of several months, in his seventy-sixth year. A Bohemian by birth, he came to this city in 1849 and for thirty-five years was actively engaged in practice in this city, having been during much of this time an associate of the late Dr. William Detold in the chair of military surgery at the College of Physicians and Surgeons. He was also one of the founders of its department of pathology.

More than twenty years ago he retired from practice. Throughout his entire life he was an enthusiastic art lover and a discriminating collector. He was a member and patron of the Metropolitan Museum of Art and of the Museum of Natural History. He was also a member of the Geographical Society, the Academy of Sciences, the Numismatic Society, the symphony and Oratorio Societies and various other scientific and literary organizations. He was one of the founders of the Palette Art Club. In 1885 he presented to this city the statue of Washington Irving, which now stands in Bryant Park. He was unmarried. His career demonstrates that a man will be the greater and more effective physician who interests himself in art and in the humanities, in men and things generally. *

Excessive Medical Fees Illegal.—It has lately been ruled by high judicial authority in more than one state, that the wealth of the patient must not be considered in making out the bill for his treatment. The character of the service, the seriousness of the complaint, the skill and time required, the result reached, may all be considered; not the patient's pocketbook.

The lastest case of this kind to be decided was that of Dr. M. P. Morrell, of St. Louis, against (curiously enough), a well-known, not to say, notorious medical editor, residing in this city. The bill rendered was $30,000, and the jury allowed $12,000, but the judge set aside the verdict as excessive. As it is not probable that the defendant is a multi-millionaire, the decision is presumably correct enough.

Evidently, the amount of extra compensation in such cases is almost purely a matter of sentiment, and hence not proper to be set down in a bill. It must be left to the patient's sense of gratitude and the degree of his personal liking for the attendant, and, in fact, is in the nature of an "honorarium quiddam," as all fees accruing to the highest class of consultants and surgeons were formerly in England, and are still, for aught we know.

Climate of Seville for Rheumatism.—A correspondent of the London *Spectator* (*Post-Graduate*) calls attention to Seville, in Spain, as a particularly good climate for rheumatism, and especially rheumatoid arthritis. After six years of increasing suffering from this disease he was led by chance to Seville, and was practically cured by six months' residence. The correspondent states that rheumatoid arthritis is actually unknown in Seville. Only muscular rheumatism of a mild type is ever found there. Not every man can go to Seville, especially not every American, but we know of some victims of rheumatoid arthritis who would cheerfully and gratefully spend six months in Seville to get rid of their great sufferings. But they have an eight months' summer there, and the temperature frequently rises to 115° to 120° F. During the whole year there is said to be an unusually rapid evaporation of moisture, wind and rain are rare, and frost is not seen more than once in twenty years. Seville is well worth considering.

The Natural Feeding of Children at Term.—Perret (*L'Obstet*, September, 1903) shows how infant mortality is largely caused by gastro-enteritis due to artificial feeding, or, not rarely, to feeding at the maternal breast mismanaged by the mother. Budin's success in mothers' schools, where the children are examined and weighed regularly and the parents instructed, has been most encouraging in the Tarnier clinic. Not one child has died of diarrhoea since 1898. Perret has weighed a large number of children born at term and reared by the mothers in the clinic. Each infant was suckled every two hours daily, but only twice during the night. The cases specially selected were infants about 6½ lb. in weight, free from digestive troubles. On the first day the child took nothing; on the second 160 grams, or 15 to 20 grams (over ½ oz.) at each meal; on the third 285 grams, or 20 to 30 grams at a meal; on the fourth 360 grams, or 35 to 40 grams at each meal. In all cases the increase in the infant's weight was steady. The most uncertain factor of importance in these calculations was the percentage of butter in the milk, An examination of the excreta is necessary. If frequent and liquid, the child is taking too much; the same is the case if they contain white lumps—that is to say, undigested milk. If they are scanty and hard the child is taking too little, especially if it does not gain weight. Then it should be fed a little more. It is in less peril than an overfed child, which is always in danger of grave disease of the alimentary tract, even if it gains weight for a while.

The Idiophone.—A New Means of Diagnosis. Arthur George Haydon (*British Med. Jour.*, October 31, 1903; *Med. R. of Rs.*) offers a new method of determining the changes in the voice produced by pathological conditions obtaining in the lungs, bronchi-trachea, larynx, pharynx and palate.

It has recently been discovered that the vibration of the singing voice in perfect health, when tested by a certain apparatus known as the idiophone, will produce the formation of pictures of flowers of various colors.

I will here give a description of the idiophone, which is employed to secure these results. A porcelain cylinder is used, measuring six inches in length, with a diameter of five inches, closed at one end by the same material, and open at the other. In the wall of the cylinder two holes are made on opposite sides, and into each hole a long tube is inserted, provided with a mouthpiece like a speaking tube. Over the open end of the cylinder a membrane of great delicacy is placed, and this is covered by lycopodium dust, the under surface of the membrane having been previously coated with a layer of gelatine; and on this various paints of the primary and secondary colors are dusted in the form of fine powder.

In order to produce the results mentioned above the vocalist should sing into one of the tubes, the other being

left open; the voice is therefore bottled up for a time in the cylinder, and the vibrations during its transit have been found to cause the various colors to pass through the gelatine and coalesce to form the most extraordinary and beautiful pictures of flowers; and these can be seen on the exposed surface of the membrane. The pictures vary in character according to the timbre of the voice, the time of the music, whether it be adagio, andante, allegretto or presto. Also if the music is phrased as in legato passages, or separated as in staccato movements. The results of the experiments with the idiophone have been photographed.

Turning now to the application of this invention to medicine, I would add that the diagnostic value of the idiophone will depend upon the pictures formed on the membrane as the result of the change in the voice produced by abnormalities of the lungs, bronchi, trachea, larynx, pharynx and palate. All these abnormalities are associated with well-known diseases, and will produce by means of the idiophone definite pictures; and valuable records can be obtained to be added to the clinical report of the case.

We shall, therefore, find, I have no doubt, that before long this new means of diagnosis will be added to every hospital and to the throat department of general hospitals, and form part of every physician's and surgeon's equipment.

The general rule governing the formation of these pictures is that to a determinate note belongs a determinate figure for the same membrane or plate, and that the figure is more complicated as the note produced is higher.

Treatment of Gangrene and of Lupus with Turpentine.—George Ross, in the *Railway Surgeon*, recalls a story of the early days of his practice, when gangrene threatened the life of a hospital patient, and nothing seemed of any avail to check it. By advice of a prominent physician, the sloughing mass was mopped to saturation with pure spirits of turpentine, covered with a dressing, and the patient given a teaspoonful of the drug every two hours. At the end of forty-eight hours the slough had fallen out, leaving a granulating surface red as a beefsteak, and the patient was on the high road to recovery. Another case of sloughing ulcers on the calf of a man's leg was treated in the same way and promptly cured, and the same result followed in a case of hospital gangrene involving almost the whole of the gluteal region of one side. Pure spirits of turpentine, locally applied to fresh cut or foul sore, is nature's perfected destroyer of germ-life—the ideal non-corrosive, innocuous disinfectant, and when administered internally, save and except only adrenalin chloride, is the most efficient capillary astringent known.

Dr. W. S. Hoy, in the *Lancet-Clinic*, says: "I do not make the slightest attempt to define the reasons *why* turpentine does the work for lupus, but I do know that by constantly applying it to a lupous ulcer it has never failed to restore the parts and cause the ulceration to heal kindly. During the past year I have treated a number of very bad cases of this disease at our hospital, each of which made a splendid recovery—that is, the unsightly ulcer was healed and has remained so."

A Safety Pump for Chloroform Anesthesia.—In 1900 there were 140 deaths registered in England as due to anesthetics—a steady increase since 1863. In that country chloroform is the popular anesthetic, and Dr. A. D. Waller, F.R.S., of the University of London, believes that death from chloroform is entirely unnecessary, being due simply to the great concentration of the inhaled vapor. The best percentage of chloroform for anesthesia is between 1 and 2 per cent. There is practically no danger from such a mixture. This can be accurately maintained by means of a pump invented by Dr. Dubois, of Lyons, which has been tried on thousands of animals, and to a limited extent on human beings, with entirely satisfactory results. In many ways, says the *Medical News*, chloroform is preferable to ether as an anesthetic, and if it could be rendered as safe as the latter, might largely replace it in this country.

Municipal Crusade Against Tuberculosis.—The city government of Philadelphia announces, through Director Martin, that the first step in a far-reaching movement against tuberculosis, will be registration of cases of the disease. Removal of infected persons to a camp somewhere in the mountains of the State is next in contemplation. The camp, it is believed, can be made self-supporting within a reasonable time. The scheme will be pushed as fast as the necessary aid can be secured.

Ultra-Microscopic Examination of Fluids.—The new microscope which enables the detection of ultra-microscopical particles by lateral focal illumination, has been put to the practical test in medicine for the first time by E. Raehlmann (*Muench. Med. Woch.*, Dec. 1, 1903; *Med. News*), with most astonishing results. Solutions of various dyes were found to contain myriads of small particles, shining in their own color, in suspension. In mixed colors, the particles of all the ingredients could be identified, but occasionally new combinations were formed. A great future is promised for this discovery in the detection of contamination. Most histologists believe that animal tissues stain readily because they become impregnated with the dye, but it now seems more probable that the fine particles simply coat the delicate structures. Certain non-colored organic substances were then examined and it was found that albumin solution, though filtered three times, also contains the albumin in finest suspension. A new method of quantitatively estimating the amount of albumin suggests itself. In a 1 per cent. solution it is impossible to obtain details, since the particles lie too closely crowded; in a dilution of 1 in 100,000 they become distinct and are still visible when the amount of albumin is only two parts in ten millions. Their size varies and the smallest are just visible as fine points. They are all engaged in active motion, which becomes less, the higher the dilution. In solutions of dextrin, gum arabic, glucose and lactose, particles of similar appearance are found. With glycogen they possess a characteristic grayish-white color, and a peculiar motion, which probably points to a special form of solution; as soon as a small amount of diastase is added, they alter their characters immediately and appear like those of dextrin.

About three years ago a certain number of physicians in Belgium decided to found an accident insurance company. The aim was to pocket the profits of such an enterprise instead of serving merely as the pack-horse contract doctors, while the profits were being poured into the laps of outsiders. La Medicale, as the new corporation was called, has succeeded beyong all anticipations. It has now nearly $25,000 annual income from premiums, an unparalleled growth

in three years for such an undertaking in Belgium. A five-per cent. dividend may be declared this year, although the medical officers of the Society are remunerated much more justly than in ordinary insurance companies. The success of the enterprise is due in large part to Dr. L. Merveille, of Chênée, editor of the *Gazette Médicale Belge*, now in its sixteenth year. He, with the other nine didrectors of the Society, has demonstrated that it is possible to conduct an insurance company on a paying basis without necessarily grinding down its medical officers to starvation remuneration.

Cream for the Home Modification of Milk.—Cream for infant feeding (Dr. Townsend, *Boston M. & S. Jour.*) may be obtained by a centrifugal process siphonage, dipping it off the top, or pouring it off. The latter has been used by the writer for a number of years with excellent results. Its simplicity recommends it, as no instruments are required. It is sufficiently accurate for ordinary purposes. There is quite a seasonal variation of the percentage of fat contained in the upper eight ounces of milk which has stood for eight hours, but the milk from a good dairy presents from day to day very little variation. After standing eight hours, the upper three ounces contains twenty-two per cent. of cream, the upper six ounces fourteen per cent., the upper eight ounces ten per cent., and the upper sixteen ounces six per cent. The variation in the requirements of infants is such that no higher degree of accuracy in percentage feeding than that furnished by the gravity cream method is required.

What Constitutes Vaccination—(N. Y. Dept. of Health) is a question sometimes asked, and it is important since not unfrequently cases of smallpox are reported where vaccination has been said to have been performed even within a few months. A person cannot be said to have been vaccinated in whom the disease vaccinia has not been induced; in the intent of the law as well as for scientific reasons one cannot be considered to be vaccinated on whom simply the procedure of vaccination has been performed without subsequent result. The purpose of the procedure is to secure protection from smallpox, and that is only effected by its resulting in the production of vaccinia, with all its normal phenomena of soreness at the site of introduction of the virus sequent in its evolution upon an interval of two or three days after the operation, and the orderly development of subsequent usual symptoms, local and constitutional, of this slight disease. Every one who has not been at some previous time successfully vaccinated or who has not had smallpox, should have this vaccinia as a result of the operation of vaccination, for the term implies not merely the procedure of inoculation with the virus, but the expected subsequent results. It is well proven that persons on whom vaccination fails are not immune to smallpox nor safe from taking it if exposed. A certificate of protection against smallpox ought only to be given after the vaccination has worked; that is, has been found to cause vaccinia.

Protective Gloves for Nurses and Physicians in Typhoid, etc.—Georgii (*M. Med. Woch.*) expresses his astonishment that nurses and physicians have not long ago adopted the practice of wearing gloves in handling typhoid and other infectious patients. The reason has probably been the lack of appropriate gloves for the purpose, those used by surgeons being too expensive and fragile. He has sought to remedy this by having gloves made of a soft, thin waterpoof cloth ("paragummistoff"), which are supplied by the Sanitaetsgeschaeft Emilie Buerk, Stuttgart, Poststr. 6, for 98 cents a pair for the long gloves reaching to the elbow. They are made large, so as to slip on and off easily, and are fastened by an elastic band near the elbow and wrist. He has found these gloves indispensable for nurses, to be used when making the bed, lifting the patient, cleaning after soiling, etc. A cheaper, shorter glove is used for other services. For physicians he advocates these gloves or the kind used by chemists. The latter cost a little more, but will be found very convenient and safe. He now uses them all the time in post-mortem work, in changing dressings, incising a panaritium, phlegmon, etc.; in short, wherever it is possible to dispense with the finer sense of touch. They deprive the examination of urine and feces and contact with the patient of all danger. These chemists' gloves are much more durable than surgeons' gloves, and will stand boiling and disinfection and do not require any special care to keep them in good order. He thinks that they have solved the problem of the glove for the general practitioner, and that the waterproof stuff gloves mentioned above should be provided for the nurses in every typhoid case at least. His nurses never liked ordinary rubber gloves, but they are enthusiastic over the new, light, waterproof cloth gloves, saying that they scarcely interfere at all with the sense of touch or the use of the fingers. Even if they do not prove absolutely germ free, they at least protect the hands and arms against the most dangerous contamination.

President Roosevelt has issued an order directing the Japenese system of wrestling to be introduced into the Naval Academy as an addition to the system of athletic training in use there.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN ANATOMY.

1. Describe the blood supply of bone.
2. Give the boundaries and the contents of the axilla.
3. Describe the knee-joint and mention its ligaments.
4. A fore arm is cut to the bone anteriorly just above the wrist-joint; what structures are severed?
5. Describe the male perineum.
6. Describe the course of the blood through the liver.
7. Describe *one* of the following muscles and give its important relations: levator ani, rectus abdominis, masseter.
8. What branches has the external carotid artery? State the anatomic relations of the external carotid artery.
9. Describe (*a*) the hard palate, (*b*) the soft palate.
10. Give the position and the relation of the pancreas.
11. Mention and describe the curves of the spinal column and explain their utility.
12. Describe (*a*) mucous membrane, (*b*) serous membrane, (*c*) tendon, (*d*) aponeurosis, (*e*) fascia.
13. What structures are supplied by the obturator nerve?
14. Mention the ligaments of the uterus. Describe the blood and nerve supply of the uterus.
15. Give the position of the heart and state the relation of its chief parts to the chest wall.

Head of Ed Column.

MISCELLANY

It is stated that an enterprising chemist of London, England, rents one-quarter grain of radium bromide to practitioners at two shillings and sixpence an hour.

A tea planters' company in Paris is offering an insurance policy for one month against death by accident to prospective purchasers of quarter, a half and one pound of tea.

By a recent decision of the Supreme Court of Louisiana, Tulane University Medical College receives the bulk of the estate of the late A. C. Hutchinson, valued at about $1,000,000. It will be used for the establishment and maintenance of a clinic and hospital in connection with the Medical School.

An Austrian statistician finds that the average lease of life of a medical practitioner is sixty years. Deaths due to tuberculosis only amount among them to 7 per cent., thus showing how careful they are in taking precautions against infection. On the other hand, fully 40 per cent. of doctors die of heart disease and nervous collapse.

The "Journal of the American Association" recently printed some curious letter-heads of physicians. Here is an odd one more lately added to the list:

"Physician and surgeon, and dealer in drugs, chemicals, notions, tobaccoes, snuff and druggists' sundries. Fifty-four years experience. Chronic diseases successfully treated. Examinations free. Hotel and sanitarium near depot."

The honor of granting the first degree in medicine to a woman is not at all recent. The University of Paris, nearly one hundred years ago, made Madame Boivin, the famous midwife, a doctor of medicine. She proved herself worthy of the degree not only practically but in a literary way, and besides membership in French and foreign scientific societies, she held an honorable position under the government as chief inspector of a home for convalescents. She died in 1841.

The Medical News directs as follows: "How To Kill a Baby with Pneumonia.—Crib in far corner of room with canopy over it. Steam kettle; gas stove (leaky tubing). Room at 80° F. Many gas jets burning. Friends in the room, also the pug dog. Chest snugly enveloped in waistcoat poultice. If child's temperature is 105° F., make the poultice thick, hot and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics and wait."

The late Dr. John Gilwee, of St. Louis, left a clause in his will as follows: "In case that my horse Tarry, which I have used for nearly twenty-three years, survives me, I order that $2,000 of my estate be placed in trust at six per cent. per annum, and said interest used for his feed and shelter and care so long as he lives, and after his death, said $2,000 shall be divided among my legal heirs." Tarry outlived his aged master whom he had served so long and faithfully, and he is now enjoying his reward.

The big freight steamers that carry mutton from Melbourne to Liverpool have more applicants for work and passage than they can accommodate. The refrigerator compartments are open to visitors, and the secret has leaked out, that ice-air cures seasickness and sick headaches, even in the summer weeks of the tropics. After an hour's work under the rays of a vertical sun, a despondent mariner can take a stroll to the freeze pit and brace up in five minutes.

The intense irritation and pain accompanying the local application of formaldehyde to mucous surfaces may be avoided by blending it with glycerine. Four per cent of glycerine is sufficiently strong, and makes an admirable local application in diphtheria, tonsilitis, rhinitis, stomatitis and vaginal and vulvar ulcers, tuberculous ulcers, etc.

Isaac Price, a native of New York City, died of apoplexy in Greenpoint, Brooklyn, on December 11, in his one hundred and second year. It is stated that he was a total abstainer as regards alcohol, but that he was an inveterate chewer of tobacco, and that it was to its use during practically his whole life he attributed the excellent health which he always enjoyed.

Dr. J. W. Blankenship, botanist at the State experiment stations at Bozeman, Mont., is making a collection of the herbs used by Indians for medicinal purposes. The collection will be exhibited at St. Louis. Dr. Blankenship has unearthed the formula for bread-making from sunflower seeds used by some of the tribes, and also the nature of the wild tobacco they used to grow, which was milder than that now in use.

During the Napoleonic Retreat from Russia, General Ornano's head was grazed by a bullet while he was charging the enemy. The General fell from his horse and his orderly ran to assist him. Finding that his General showed no sign of life, the orderly buried him under a pile of snow, and reported his death to Napoleon. Two hours later General Ornano appeared before the Emperor very much alive. Years afterwards he was one of the pallbearers at the funeral of the orderly who had so kindly buried him in the snow.

Ridlon attempts to show the exact value of the so-called bloodless operation for the replacement of congenitally dislocated hips. He has succeeded in following the after history of ninety-four operations. To date only ten cases show perfect anatomical results. The remainder of the cases are yet wearing splints. The final results will probably be somewhat as follows: Perfect anatomic results, 10; "good results," 61; poor results and failures, 23. Though this showing seems rather poor, yet the author is in favor of the method in all suitable cases.

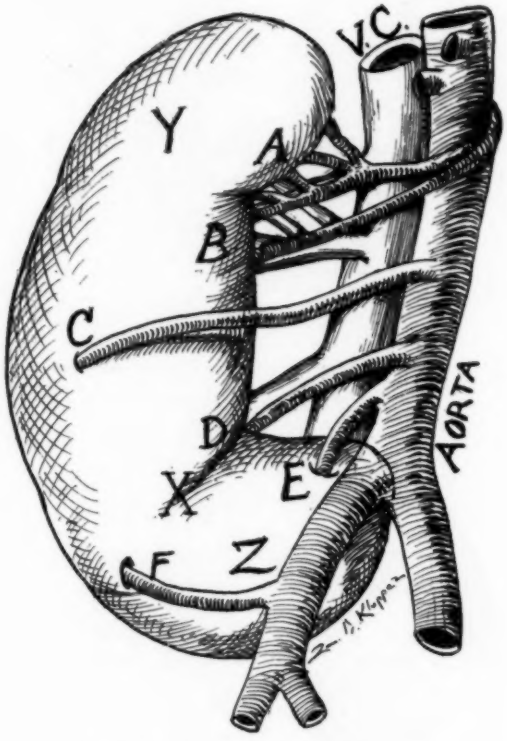
M. Behring and **M. Hericourt** (*Jour. des Practiciens*, April 23, 1903) propose to immunize infants by feeding them on milk taken from cows that have been vaccinated against tuberculosis, old bacillus cultures of human origin having been injected in young animals. Experimentation has shown that animals so treated are absolutely immune. There is, of course, no danger in trying the process on infants, but as all children do not become affected with tuberculosis, it will be difficult to tell whether or not they owe their immunity to treatment.

All the Tinned Meats for the Russian Army are being prepared at St. Petersburg and Riga by a German process which enables the contents of each tin to be served hot without a fire. The process of heating is to place the tin inside another filled with water, and having a false bottom. The latter contains a carbide mixture which can be forced into the water when desired, its effect being to bring the contents of the inner tin to boiling point in a few minutes. The soldiers are thus enabled to enjoy a hot meal when no ordinary cooking could be done.

SOLITARY KIDNEY.

BY BYRON ROBINSON, B.S., M.D., CHICAGO.

A SOLITARY kidney is a compound organ consisting of two fused kidneys in which one or both organs are displaced. The solitary kidney is a fusion of a more extensive and intimate degree than that of the horse-shoe. A solitary kidney is a malformed organ by fusion, hence there is only one renal mass in the body.



VENTRAL VIEW OF SOLITARY KIDNEY.

FIG. 1.—The solitary kidney is located on the right side. It has two ureters and six renal arteries. I sketched this illustration from a specimen in the Rush Medical College Pathologic Museum through the courtesy of Prof. E. Le Count.

FREQUENCY OF SOLITARY KIDNEY.

Henry Morris collected the statistics of autopsies from Guys Hospital for 10 years, from Middlesex Hospital for 24 years, Bartholomew's Hospital for 10 years, from Great Ormond street Hospital for 10 years. Total number of autopsies, 15,998. The findings demonstrated unsymmetrical or extreme atrophy of one kidney, 1 to 2,650; horse-shoe kidney, 1 to 1,000; solitary (compound, fused) 1 to 16,000.

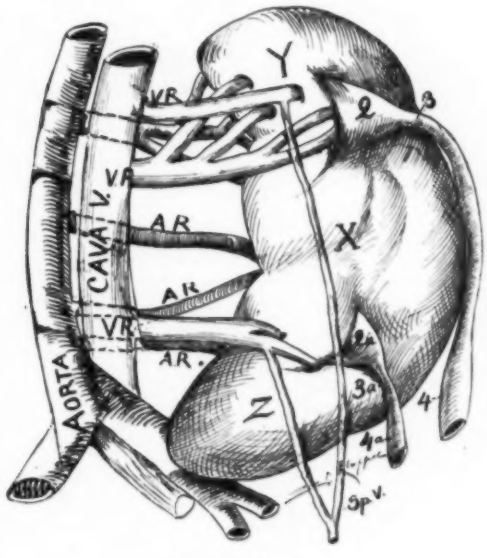
Morris searched the American and English journals from 1883 to 1893, *i.e.*, 10 years. The findings were the following: Unsymmetrical kidney, 11; Atrophic or rudimentary kidney, 10; Horse-shoe kidney, 8; Solitary (compound, fused) kidney, 2. I searched the transactions of the London Pathologic Society extending over 50 years and found the reports of two solitary kidneys; one by Dr. Sidney Coupland in 1877 and one by Dr. W. S. Greenfield in 1877. To the above reports I can add two specimens of my own, one from Dr. W. A. Dennis, also one reported in an American journal about February, 1904. Virchow's Archives reports one case. This makes a total number of 9 solitary kidneys. The accompanying statistics indicate that the probabilty of a person possessing a solitary kidney is very rare (1 to many thousands). However, the statistics are amply sufficient to place the physician on guard.

THE LOCATION OF SOLITARY KIDNEY.

The rule is that solitary kidneys are displaced, for renal fusion means malformation and malformed kidneys in an extra-normal location. Malformation and malposition are liable to coexist. The solitary kidney may be located: (a) in the normal situation; (b) in the iliac fossa; (c) in the pelvis; (d) in the median line, especially on the sacrum. In 8 illustrations of solitary kidney 5 were located on the left side, two on the right side and 1 on the sacral promontory.

THE POSITION OF THE HILUS RENALIS IN SOLITARY KIDNEY.

From illustrations with literature of 8 solitary kidneys, I observe the hilus renalis is on the ventral surface of the kidney 7 times and 1 time on the dorsal surface. Accompanying this article is an excellent sample of a solitary kidney with the two hila located on the dorsal renal surface. The dimensions of the proximal and distal hilus renalis is generally more limited and definite but irregular in contour than normally. The relation of the renal vessels and ureter in the hilum is abnormal in almost every case. The hila renalia are generally located in a proximo distal direction; however, they may be located in an oblique direction. The *sinus renalis* is irregular in form, and dimensions generally presenting a shallow renal pocket.

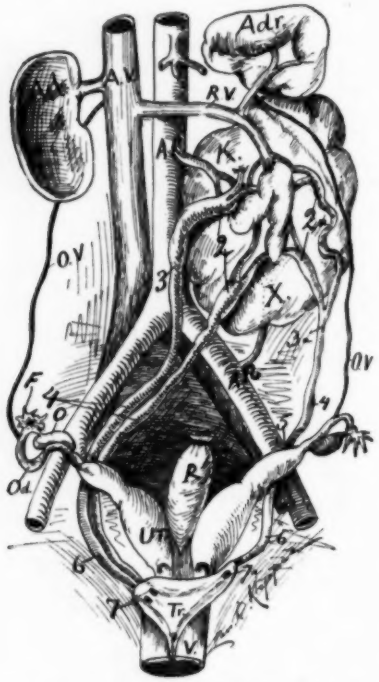


DORSAL VIEW.

FIG. 2 is the reverse of Fig. 1. Ureteral duplicity. Y, Z, Sp. v. spermatic vein. It has three renal veins.

THE URETER IN SOLITARY KIDNEY.

In 8 illustrations each kidney had 2 ureters, one illustration had complete duplicate unilateral ureters and one partially duplicated ureter; the duplicate unilateral ureters opened into the bladder by separate orifices. Practically the ureters in solitary kidney have their exit in the normal vesical location. However, few illustrations are accompanied by complete drawings—mainly the bladder and distal ureters are lacking in the drawings. The ureteral isthmuses and dilations are practically normal, the ureteral pelves and calyces



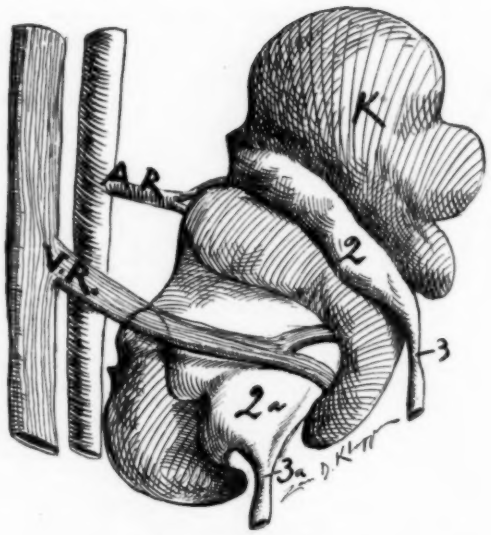
SOLITARY KIDNEY. VENTRAL VIEW.

FIG. 3.—The kidney is from a child, located on the left side. Ureteral duplicity is complete on the right, but partial on the left. The right adrenal is located on the right side. Three ureteral orifices have their exit in the bladder. The tractus genitalis is imperfectly developed. (Ut) uterus, double bicornua, however, not in contact. One renal artery A. R. arises from the iliac. R, rectum. I secured this specimen from the Rush Medical College Pathologic Museum through the courtesy of Prof. Le Count.

being the part generally malformed. The course of the uterers is chiefly abnormal. The ureter emanating from the same side of the body on which the kidney is located, may assume a fairly normal course but the ureter which must cross the vertebral column or sacrum to reach the bladder assumes an abnormal course. One would think that the ureter which crosses the lumbar vertebrae or sacrum assumed a dangerous course in woman and would be exposed to trauma from the genitals during parturition.

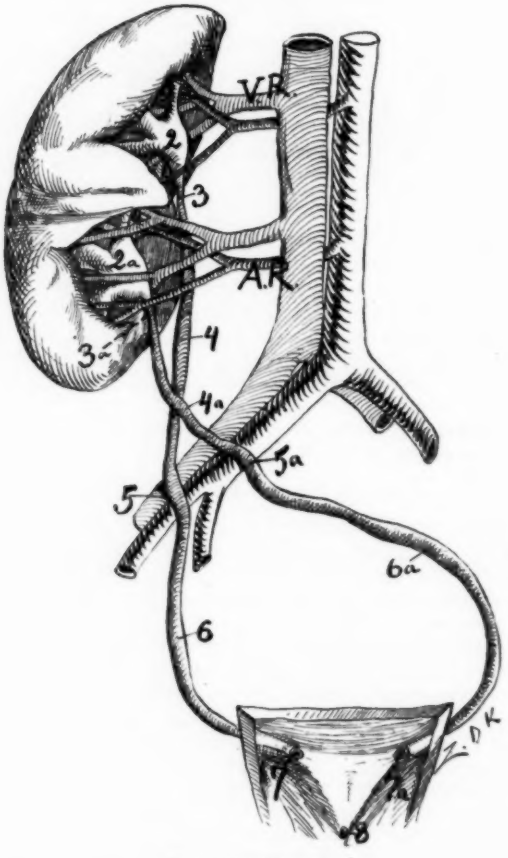
DIMENSIONS OF SOLITARY KIDNEY.

The size of solitary kidney varies within rather narrow limits. It may equal two normal kidneys in volume or represent about 1½ volumes of a normal kidney. Fused renal masses vary in functional capacity on account of the amount of parenchyma and interstitial tissue present.



SOLITARY KIDNEY.

FIG. 4.—Modified from Sidney Coupland in London Pathologic Transactions. Ventral view. One renal artery and vein. 2, proximal ureteral pelvis. 2a, distal ureteral pelvis.



SOLITARY KIDNEY.

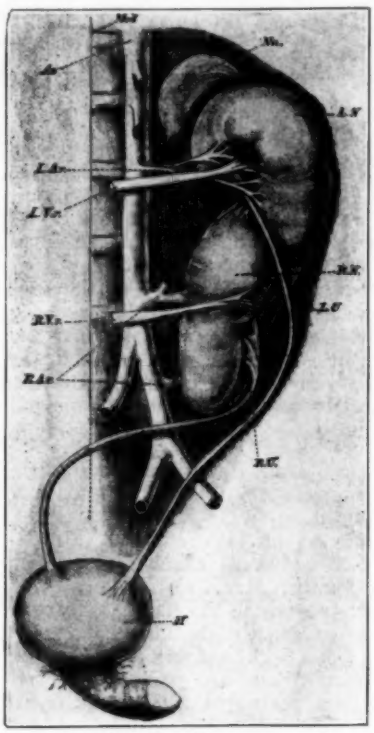
FIG. 5.—Ventral view. The kidney is located on the right side. The specimen was kindly lent me by Dr. Warren A. Dennis, of St. Paul, Minn.

THE VESSELS IN SOLITARY KIDNEY.

The vessels are generally irregular in number, dimensions, origin and distribution. The relation of the solitary kidney to the aorta and vena cava is generally that of a renal mass rotated to the right or left.

DIAGNOSIS OF SOLITARY KIDNEY.

Clinical data, Urinalysis, Percussion and *inspection*



SOLITARY KIDNEY.

FIG. 6.—Ventral view. The kidney is an S-shaped organ and appears as a double organ with corresponding vasa renalia and ureters located on the left side. From Virchowe's Archives.

are practically negative. *Palpation* is unreliable. *Asymmetry* is uncertain in aid, yet it may be suggestive. *X-Ray* may furnish some clue by asymmetry of the shadow in the plate development. *Cystoscopy* will offer some reliable aid. It will locate and number the vesical orifices of the ureters as well as announcing whether the orifices functionate. It will demonstrate the symmetry or asymmetry of the trigone.

Ureteral Catheterization offers the most reliable guide. Both ureters should be catheterized with catheters containing wire or subnitrate of bismuth and X-rayed while in position. This will demonstrate the location of the proximal termination of the ureters. It will demonstrate the crossing of the vertebral column by one of the ureters. *Exploratory* incision is the last resort in diagnosis. The terrible disaster of removing the only kidney the patient possessed has occurred to three distinguished American surgeons. The only method to avoid a repeition of this disaster is to exhaust all diagnostic means and finally to palpate for a second kidney before the first is removed. The *prognosis* of solitary kidney is favorable, as it is found at all ages and in both sexes. It is liable, if minimum size, to suffer from overstrain in acute disease or in renal surgery.

BAD-NAUHEIM AND ITS TREATMENTS.

BY J. HOWE ADAMS, M.D., PHILADELPHIA.

PART I.

BAD NAUHEIM has become a medical fad; its fame has percolated through various channels until to-day the little German bath-town is overrun with sick people from everywhere. Bad Nauheim has seen this happy event coming and has prepared for it; in the past eight years many new hotels, amusement halls and bathing accommodations have been provided, still its capacity has been tested; its prices have advanced to the most approved new world figures and its physicians are reveling in their rapidly increasing prosperity.

America is a "boom country," everything to succeed must be overdone—at one time the bicycle was the fad until it was done to death; now it is golf, which seems of sturdier growth. In medical circles it is Bad Nauheim, and in consequence Bad Nauheim is deluged with nervous cases, gouty cases, rheumatic cases, cases of melancholia, cases of hypochondriasis, cases which want to be in the latest medical fad until the honest German doctors on the river Usa begin to think that the whole of America and England, for Americans are yet in the minority, have gone mad over their thermal and sprudel baths. The attending physicians are overwhelmed with every variety of cases, fitted or unfitted for their methods, many of whom, not following directions, being made much worse by their experiences in Nauheim. It will be the object of this paper to endeavor to point out the good and bad points of Nauheim, what diseases are treated with success, what the treatment consists of, and the varying medical details of the summer of 1904.

Bad Nauheim, 500 feet above the sea level, is the last link in the chain of bath-towns which are in the pleasant valley between the southern foot of the Taunus and the Vogelsberg.

The town of Bad Nauheim, with 4,500 inhabitants, is situated in the fertile district of the Wetterau, on the eastern slope of Johannisberg, a spur of the Taunus Mountains, on the river Usa. The express trains of the Frankfort-Cassel Railway line stop here. The journey from Cassel to Bad Nauheim takes three and a half hours, and that from Frankfort three-quarters of an hour. A new line has also been opened to Homburg. A shady avenue bordered on both sides by pretty villas with gardens, leads from the station, on the eastern side of the town, to the hot spring and bath-houses. A shady walk, through the Park northwards leads to the terrace of the Kurhouse, while the beautiful avenue "Park-allee," half a mile long, and bordered on one side by the Park itself, conducts the visitor to the foot of Johannisberg. The large and shady park, covering an area of 300 acres, terminates on the north in a big lake, and on the south in the town proper. Two long rows of salt refining works stretch south of the town and form a characteristic feature of Nauheim.

Nauheim was an agricultural settlement at the very earliest Roman period; salt was found here even before that era. The earliest reliable account of the history of Nauheim dates from the year 1225, when it belonged to the Count of Hanau, and partly to the Counts of Falkenstein. In the year 1814, the latter line dying out, it came into the entire possession of the Count of Hanau. From the year 1810 till the year 1816 Nauheim belonged

to the Grand Duke of Hesse-Darmstadt. It then came under the rule of the Elector of Hesse-Cassel, and, together with the three villages of Dorheim, Schwalheim and Rodgen remained under the said Elector as an "Enclave," or enclosed property, surrounded by the province of Hesse-Darmstadt on one side, and Hesse-Nassau on the other. But, in the year 1866, the enclave of the four villages, Nauheim, Dorheim, Schwalheim and Rodgen was ceded to the Grand Duke of Hesse-Darmstadt, when, by the Treaty with Prussia, the Electorate of Hesse-Cassel and the Duchy of Nassau were annexed by that kingdom.

The medical history of the Nauheim baths dates only from the year 1835, when on the first of July the New Saline Bath was declared open to the public. It was a stone building, surrounded by a park, and contained nine bathrooms with a number of dwelling rooms, a dinner-room and kitchen. It is still in existence, bearing the name of the "Hotel Kursaal." The accommodations were found to be insufficient, and from time to time they were increased, until there are now 280 bathrooms with 295 baths.

In the year 1854, Nauheim, which had hitherto ranked as a village, holding a weekly market, was created a borough, and received the official name of "Bad Nauheim," in order to distinguish it from the town of that name near Gross-Gerau, in the Grand Duchy of Hesse. The standard statistics of visitors to Nauheim, and of the number of baths taken, show at a glance its rapid progress, especially in the last few years.

Year.	Number of Visitors.	Number of Baths Taken.
1871	5,249	56,664
1891	9,244	120,261
1892	10,272	129,330
1893	10,384	138,250
1894	11,681	151,829
1895	14,136	186,555
1896	15,230	200,282
1897	17,938	227,338
1898	19,534	260,119
1899	22,114	294,326
1900	21,750	305,000
1901	19,883	296,583

Thirty thousand visitors is the estimate for 1904.

The climate of Bad Nauheim is that of the western part of Germany. The air here during the summer is pleasantly cool in the morning and evening, owing to the immediate neighborhood of the mountains. Johannisberg lies to the northwest, and the ground on which the town is situated slopes gently to the southeast, and is traversed by the Usa, flowing through the park. Owing to the favorable nature of the soil, the streets and avenues dry in a few hours, even after heavy showers, as the water runs quickly off the surface.

The average temperature, according to forty years' observation is 40° Fahr., that of June 63° Fahr., of July 68° Fahr. and of August 65° Fahr. The air is fresh, owing to the vicinity of the woods, and the evaporation of ozone from the salt refining works renders it very invigorating. The long avenues and fine groups of trees in the large park, around which the greater number of the villas stand, render Bad-Nauheim, from a hygienic point of view, all that can be desired. Epidemics have never found any footing here; since 1892 the drainage has been perfect. A long conduit pipe carries off the sewage to a distance of more than a mile, where it is submitted to a filtering process. A reservoir, built ten years ago, and enlarged in 1900, provides the houses with excellent drinking water and facilitates the flushing of the drains, and watering of the roads and parks. All houses that receive visitors are connected with the town water supply, while the sanitation of the houses is supervised by the Board of Health inspectors.

The season proper begins on the 1st of May, and ends on the 30th of September, but the baths can be taken from April till October, and, if required, longer. Any person visiting Bad-Nauheim during the official season and making a stay exceeding five days is required to pay a "Kur-tax."

The following regulations concerning the Kur-rate are in force:

(*a*) For Visitors.

One person .....Mk. 15—15 sh.
A family of two persons.....Mk. 20—20 sh.
For each additional adult member of the family.....Mk. 4— 4 sh.

These tickets are made out in the name of the holder and are not transferable; they entitle the holder to the use of the springs and drinking hall, the Kurhouse grounds, the Kurhouse, the reading and assembly rooms, as well as admittance to the dances, balls and daily concerts.

(*b*) For Visitors of Limited Means.

Tickets are granted by the Grand-ducal Commissioner of Baths at the Office, Bath-house VI., during the week from 10 A. M. till noon.

For one person.....Mk. 6—6 sh.
For each additional member of the family .....Mk. 3—3 sh.

The holders of such tickets are only entitled to the use of the springs, the drinking hall, and to visit the Kurhouse grounds, the reading rooms and the daily concerts. Season tickets are available for forty-five days only. Visitors prolonging their stay have to give notice of their intention to the Grand-ducal Bade-direction Office, Bath-house VI., hours on week days, 10 A. M. till noon.

For those persons arriving after the 10th of September the Kur-rate is reduced to one-half; for those arriving after the 25th of September daily tickets at fifty pfennig (sixpence) are issued, which entitle the holder to the same rights as those of (*a*), provided the entrance fee does not exceed fifty pfennig. To those persons who do not stay longer at Bad-Nauheim than five days, tickets at 50 pfennig are also issued during the interval between the 1st of May and 25th of September.

Of all the numerous brine springs and wells that have been sunk at Nauheim, only five are still in use, and two of these are employed to supply the baths, *viz.*, the "Great Sprudel," or Spring No. 7, and the "Friedrich-Wilhelms-Quelle," or Spring No. 12. The sinking of the former of these springs was begun as early as 1839, but the work was abandoned in 1841. Quite unexpectedly, in December, 1846, a powerful spring, with 88.9° Fahr. of warmth and more than 3 per cent. of salt, forced its way through the covered up shaft. As this spring was the strongest of any existing at that time, it received the name of the "Great Sprudel"; it is no longer the strongest, for the one situated close to it, sunk in the years 1852-55, to a depth of 180 metres (Spring No. 12, or the Friedrich-Wilhelms-Quelle) surpasses it by far in the quantity of

water produced, has 1 per cent. more salt, and is warmer, showing a temperature of 95.5° Fahr. When the regulating cock of the discharge pipe is turned on full, which takes place every Sunday afternoon between four and five o'clock, the column of water mounts to a height of 14 metres from the pressure of carbonic acid. Carbonic acid is altogether the most important ingredient of these springs, containing a larger quantity than any other known spring. Another peculiarity which distinguishes these springs the *great quantity* of salts they contain, especially of some very strong salts, such as chloride of calcium, chloride of potassium and chloride of magnesium. They also contain a great quantity of iron. Added to these peculiar properties they also have the advantage of natural warmth.

The Different Baths.—1. Ordinary Brine Bath (gewöhnliches Soolbad). The water coming with such force from the interior of the earth is gathered directly into large reservoirs, from which it is carried, by means of pipes, partly to the different bathing-houses and partly to the salines or salt works, where the brine is made into salt. Before entering the bath-house the water is made to pass through a graduating-house, whereby the carbonic acid is removed and the water purified from undissolved particles; this water is used for preparing the baths free from carbonic acid, *i.e.*, the so-called "simple" brine baths, which greatly resemble the Kreuznach baths, although stronger. These baths can be given with any temperature or strength required, fresh water being added if a weaker bath is wanted, or some mother-lye (Mutterlauge), when a stronger bath is desired.

2. Thermal Brine Bath (Thermalbad). These baths are given in the Bathing-houses II., III., V. and VI., where the brine comes direct from the spring reservoir with almost its natural warmth—thence the name "thermal" brine bath—that is to say, 85 to 90.5° Fahr., according to medical direction, either from one spring alone or from both, mixed in varying proportions and containing from 2 to 3½ per cent. of salt. These baths contain a considerable quantity of carbonic acid held in solution—not the full amount possessed by the spring, as a part of it is lost in the rising and falling of the fountain. Through this escape of carbonic acid a certain part of the calcareous and ferruginous salts, which had been kept dissolved in the water, becomes insoluble, which can clearly be perceived by looking at the fountain, giving the water a dirty yellowish color.

3. Effervescent Bath (Sprudelbad). To the main pipes, lateral subterranean pipes have been attached, so that the water can be brought from the interior of the earth into the baths, without having anywhere come in contact with the air. It is in this way that Bathing-house No. 1 is supplied from Springs 7 and 12, and the Bathing-houses Nos. 5 and 6 from Spring 12 alone. The water thus containing its full amount of carbonic acid, reaches the bath in an integral state and as clear as crystal, with only a slight diminution in its natural warmth of 87° and 92° Fahr., respectively. The amount of salt contained is the same as that in the thermal baths, and can be both increased and diminished.

4. Current Thermal Brine Bath and Current Effervescent Bath (Strombad and Sprudelstrombad). A greater effect on the organism is to be obtained from the thermal baths, as well as from the effervescent baths, by keeping up a continual flow of water through the baths, which can be accomplished by leaving the filling and emptying pipes open, permitting the water to run continually into the bath and out again with an ever-equal temperature. These baths are a specialty of Nauheim.

5. Shower Baths. These baths are sometimes used in connection with other baths, but can also be taken by themselves, brine and fresh water shower baths of all sorts in many different degrees of strength and temperature being available.

6. Hip Baths. These baths are prepared either with thermal brine containing gas or with brine free from carbonic acid.

7. Fresh Water Baths in Bathing-house No. IV.

8. Cold Water Baths in the lake.

The bathing-houses are built on a common ground plan. In the centre is the waiting-room, with two long wings containing bathrooms on either side. In the waiting-room of Bathing-house No. VI. is a ticket office for bath-tickets and one for season tickets (Kurkarten). The bath-tubs are made of wood in all houses without exception, as this material has been found, after many trials with other sorts of receptacles (porcelain, glass, metal, etc.), to be the most serviceable, both as regards its power of resistance against the destroying influences of the thermal brine, as well as on account of its greater comfort to the bather. Over each bath is fixed an appliance for shower baths, which can be used either as a strong waterspout or a gentle spray douche. By the side of each bath there is a receptacle for the warming of the bath linen. Steps, benches and other arrangements to facilitate the getting in and out of the baths are kept at hand in all the bathing-houses.

General Effects of the Baths.—It is now universally known that the theory of taking these baths is not that the body absorbs anything from the bath, or that such absorption influences the composition of the blood and tissues, but that in all the baths a peculiar irritating effect on the ramification and completion of the nerves in the skin takes place, this irritation is then transferred from the terminal nerves to the central parts of the nervous system and thus an effect on the entire body is obtained. The irritation of the cutaneous nerves, caused by the baths, is partly of a thermic, partly of a chemical, and partly of a mechanical nature.

Physiological Action of the Baths.—The physiological action of every therapeutic measure is frequently not understood despite recent researches. Many therapeutic actions are wrapt in empiricism; until recent years this was true of balneology. The effects were well known, but no satisfactory explanation existed as to how these effects were produced. This was the case with all watering places, including Nauheim, where the following five groups of diseases are those which chiefly come under treatment (Wachenfeld).

1. Diseases of the heart, especially subacute and chronic forms of Endocarditis and Myocarditis.

2. Scrofula.

3. Diseases of the nerves, and some forms of diseases of the spinal cord, especially Tabes.

4. Diseases of women—Metritis, Endometritis, Peri- and Parametritis, and Fibromyoma.

5. Gout and Rheumatism.

On examination it can be noted that all these diseases have something in common; with them all there is the infiltration of intramuscular and intercellular tissue. The curing effect of the Nauheim Springs depends upon

the absorption of the morbid swellings, but for a long time no explanation as to how this absorption was accomplished was forthcoming. These questions are clearly demonstrated in the works of Heidenhain on "Lymphstream." According to this observer the course of the lymph is of the greatest importance in considering the processes of waste and renovation of the body. Wundt has already said in his "Manual of Physiology" in the chapter on the Resorption of the Transudate, as follows: "It is probable that the lymph during its slow progress through the interstitial canal system comes into contact with the tissues more directly than the blood, and takes a part in supplying them with nourishment. In the formation of glandular secretion this is especially so; there, at all events, in most of the glands the vessels are surrounded by lymph vessels. So the fluid is transudated from the blood and conveyed into the interstices of the tissue, and the lymph abstracted is used by the secretive cells in the preparation of secretion. The important signification of the lymph for the formation and nourishment of secretion supports the theory that it abstracts more decomposed particles from the tissue than the venous blood."

Heidenhain lays emphasis upon the fact that, according to the researches of Ludwig and his disciples, the chemical requirements of the organs, conducted to them by the blood, either as nourishment or for the due performance of their proper functions, can only reach their destined place by means of the lymph.

It is probably true that the transit from the lymph into the tissue does not take place by the material being absorbed by diffusion in the tissue in the form of a solution, but it finds entrance in much the same way as oxygen, *i.e.*, by respiration, being gradually absorbed in the tissue. The strain upon the constituent parts is lessened in the lymph, and to this the streaming of the matter from the blood into the lymph again is attributable. Should pure diffusion of the dissolved matter take place, the lymph movement would need to be ten times greater than it is, and against that is the greater proportion of the solid material in the lymph.

Cohnheim believes that the lymph movement is only a consequence of the inefficiency of the kidney filters, and Noorden says that by the creation of œdema toxic matters come into action and augment the attraction of the blood and tissue for water. The capillary walls play an essential part in the movement of the lymph; there are materials which bring out or augment the activity of the cells on the lymph movement to which Heidenhain gives the name "Lymphagoga."

Heidenhain distinguishes between:

1. Lymphagoga which augments the lymph formation by a more rapid transition of fluid from the blood, and

2. Lymphogoga which promotes the formation of the lymph by the transition of water from the tissue.

The result of the first-named he characterizes as "Blood-lymph," the second as "Tissue-lymph."

To produce blood-lymph Heidenhain made use of the following substances: Muscles of crabs, white of eggs, pepton, etc., which were dried, pulverized, and in a solution of 30. C. C. injected into the blood raising the lymph secretion considerably above the normal condition, and this augmentation was maintained for one hour or longer. A like amount of water or physiological solution of salt injected into the blood had not the slightest effect in stimulating the production of lymph secretion. The increased secreting power of the lymph was due to the injection of th first-named substance, and not to the water in which these ingredients were dissolved. Following the injection of one of these solutions, the lymph and blood became less coagulable, sometimes remaining in a liquid condition for twenty-four hours. The amount of salts in the lymphs remained almost unchanged in the stronger secretion, but at first the amount of organic matter was increased, and by and by diminished, according to the quantity of the lymph.

To produce "tissue lymph" Heidenhain used sugar, urea, salt, etc., injected into the blood; he comes to the conclusion that the increase in the lymph stream following the injection of "Lymphagoga" in the second case is due to the physical power of water absorption possessed by these substances. The lymph stream increased with the water-absorbing power of the salt; but, he adds, it is evident from the greater amount of solid matter contained in the lymph that it cannot be a question of pure diffusion.

Later Heidenhain proved that an augmented secretion of the gland could be caused by stimulation of the nerves; stimulation of the chorda tympani resulted in a copious flow of saliva, with an increase in the organic substance. In the laboratory of Nature, electricity plays an important part. From the centre of the epidermis in each plant, an electrical current can be traced; so also in animal organism, on membranes and mucous membranes, which are covered with secreting glands between the acid and alkaline re-active organs, etc. Du Bois-Raymond was able to trace in the muscles and nerves, also in the lungs, liver, kidneys and spleen of rabbits, a strong electric current running from the centre of a transverse section to the outer surface. He could also trace electric currents running through the elastic tissues, bones, etc. These currents did not exist in the tissue before, but came into force on coming into contact with some instrument for tracing electricity, and also naturally they came into force by an irritation of the nerves of the tissue.

Du Bois-Raymond says: "It appears to me that I have succeeded in realizing the long-cherished dream of the physician and physiologist in the unity of the nerves with electricity. It is now evident beyond a doubt that electric currents have an effect on the diffusion of liquids in the tissue."

Wundt writes: "Each galvanic current compels the particles of the liquid through which it passes to travel from one pole to the other. This motion of the currents, which goes on independently of its analytical effect, extends not only to the substance in solution, but also to the agent of the solution, and even to some suspended insoluble particles of it." That an increase in the lymph movement can be produced by a stimulation of the nerves can unquestionably be accepted. That the result of the action of the waters is not brought about through resorption of one or the other constituents of the water, but is due to the stimulation of the membranous nerves, may also be regarded as indisputable. It can well be understood that the irritation to the skin caused by the waters is conducted to the diseased organ by the nerves and there acts, but this does not explain the varying effects produced by different waters.

Formerly it was considered a matter of indifference as to the composition of the water, or whether a bath or other stimulus were employed as the agent acting upon

the skin, but such a view would be entirely erroneous—each of the baths has a specific effect. Nasse has demonstrated that the stimulation of the motor nerves by means of a salt solution varies in proportion to the concentration of the solution, and he further proves that the same proportion obtains in a series of Natrium Solution. Hirschmann, a disciple of Heidenhain, after researches in the Physiological Institute at Breslau concerning the stimulation of the motor nerves by means of various salt solutions, came to the conclusion that on the chemical basis depends the essential influence of the amount of stimulation; that it is not a loss of water in the nerve substance, but only an effect of the basis. In the course of his experiments he produced a stimulating effect by means of solutions of natrium and lithia salts. The various concentrations of the alkali salts had no effect whatever, and even the solutions of natrium and lithia salts took effect in certain concentrations.

Of course these researches relate to motor nerves only, but it may be taken for granted that similar conditions exist in the nerves, which transmit feeling, and that they act according to certain definite laws.

The Mineral Drinking Waters.—Three springs supply drinking waters, two of these—the Kurbrunnen being the stronger and the Karlsbrunnen the weaker—belong to the so-called effervescent saline purgative waters, while the Ludwigsquelle is an effervescent alkaline water and serves not only for medicinal purposes, but also as a table water. The two first-mentioned springs are situated near the drinking-hall, behind the Kursaal Hotel and the Park Hotel. The Ludwigsquelle lies about five minutes farther off on the road to Friedberg, but its waters can also be had, when desired, at the springs near the drinking-hall.

The waters of the three springs are taken according to medical prescription, each one by itself or mixed, as the physician may think best; they are taken at their own natural temperature or made still warmer, and from one to three glasses containing 5/8 ounce each; they are mostly taken in the morning while fasting. Many other kinds of mineral waters (Marienbad, Carlsbad, Schwalbach and others) are frequently prescribed by physicians, and are always to be had in a perfectly fresh condition in the drinking-hall.

By prescribing a course of mineral waters it is possible to stimulate the metabolism in several ways and to promote the absorption and excretion of exudata and other remains of diseases; moreover we can exercise a direct influence upon the stomach and bowels and by exciting the action of the intestines we can indirectly change the circulation in the abdominal organs, as well as those in more remote parts of the body. A course of mineral waters demands constant medical supervision by an experienced physician, as is also the case with a course of baths, because these waters, as well as all others, are capable of doing irreparable injury, and cases of severe stomach and intestinal irritation have been brought on by their unrestricted and indiscriminate use.

Other Means of Treatment in Use at Nauheim.—1. Fresh Milk and Whey. Goats' whey prepared fresh every day, by a Swiss dairyman, is to be had in the western wing of the drinking-hall, and here also every morning and evening fresh milk just taken from the cows that have been examined by veterinary surgeons. During the day time both fresh and sour milk, Kefir and sterilized milk from Swiss cows is on sale.

2. Inhalation. In the eastern wing of the drinking-hall lies the Inhalation Hall, which is open from 6 to 12 o'clock in the morning and from 3 to 5 o'clock in the afternoon. By means of a most perfect apparatus the well ventilated hall is filled with a fine saline spray. Special constructions of the latest style, put up in adjoining cabinets, are employed for the separate inhalation of different Nauheim mineral waters and other medicaments through the mouth and nose.

The Graduating House, or Gradirhaus, near Bathing-House IV., is also used for purposes of inhalation, and therefore provided with a covered promenade and a number of seats. The air being impregnated with ozone and saline particles is remarkably beneficial in cases of catarrh of the respiratory organs, but it is also strengthening, refreshing and reviving for every one, especially on hot Summer days. In this Gradirhaus the water is only put in action during the usual bathing hours (Sundays in the morning only), but every day without interruption in another larger house, lying more to the south and also provided with seats.

3. Massage and Swedish Gymnastics. These are applied in part manually, in which case thoroughly trained servants are employed, and partly mechanically, in the new Medico-Mechanic Institute, by means of very ingeniously constructed machines invented by Professor Zander of Stockholm. These machines execute all the passive and active movements and other exercises required by the Swedish Gymnasts with the greatest exactitude, thus enabling us to prescribe a precise amount of exercise, which it is absolutely impossible to do where manual force is applied.

4. Terrainkur (pedestrian exercises), for which purpose a number of paths, both level and of varying steepness, with corresponding finger-posts, have been provided.

THE SEARCH FOR HEALTH IN THE VARIOUS PHASES OF CLIMATE.

BY A. K. YOST, M.D.

THE importance of the problem of climate is growing daily, not only in tuberculosis and Bright's disease, but even as a prevention or protection from disease. The question of vacations is included in this discussion. Some years ago Waugh proposed a holiday every seventh year, taking a year off for the purposes of rest and recreation. The suggestion is a novel one and peculiarly fitted to busy physicians who are not able to take short, frequent holidays to advantage.

In the first place before questions of therapeutical climatology and balneology is the problem of the sanitary conditions to which visitors are subjected at climatic or sanitary cures. "Summer resort typhoid" is too well known to need discussion; every year people come home with the germs of disease in their system; yet there are but few difficulties that cannot be removed in the way of improving unsanitary conditions. The State Board of Health of New Jersey has taken up the sanitation of summer resorts, and under their supervision much improvement has been accomplished. The visitors at these resorts are not wholly blameless;

a prominent Atlantic City physician calculates that he makes two thousand dollars every summer from patients eating clams obtained at restaurants and booths that are obviously tenth rate.

We are just beginning to appreciate the effect that meteorological conditions have on the public health. We have three types of summer weather—warm and dry, warm and moist, and hot. Climatologists tell us that smallpox is particularly fatal under the first, while the death-rates of scarlet and typhoid fevers seem to be increased under the second, while hot weather is marked by sharp increase in bowel complaints and a proportionately great increase in the mortality of infants. Yet with reasonable care outside of infant mortality there is no good reason why the mortality of the summer should exceed that of the winter.

In our father's day it was thought that the summer could be healthfully and comfortably passed at home, and there is still much truth in this remark, when the life of the smaller cities and towns is considered. This is especially true if these cities are not built up too closely and are exempt from the noxious effects of large manufactories and other infecting causes. We do not know yet the amount and the extent of the impurity of the air in great cities; these impurities may be divided into acids (carbonic and nitric) and organic matter. Frequent comparison of country and town rainfall has shown that acids are above the average in cities; while the amount of organic matter in the air is comparatively very large in cities, the quantity, as might naturally be expected, increasing in a constant ratio with the density of the population. Such impurities have deleterious effects on the public health. In Great Britain inquiry has been initiated, with a view of "authoritatively defining the safe limits of the density of population, and the extent to which manufactures may be carried on within a given area." The fatal relation of certain types of weather to the public health is obvious even to laymen, yet until the heated term slays its hundreds, proper sanitary methods are not strictly observed, nor are the weak and sickly properly forearmed. Since health and comfort now dictate the emptying of large cities for a certain period each summer, what are the respective advantages offered by the mountains, forests, lakes and seashore? A comfortable and healthy summer climate is one which is difficult to define with absolute precision, especially for the United States, where the enormous extent of territory is populated by communities accustomed to different climates. In this important problem the temperature is a dominant factor, in summer, at least; the average daily, as well as the maximum and minimum temperatures must be relatively stated, since there are only a few localities where the entire summer is wholly comfortable; though there are many localities which are healthful. In advertisements we read that the temperature never reaches the eighties, the sky shows just enough of cloud to perfect the landscape, while the breezes are always balmy and the nights cool. Greeley says that there is one place in the United States where such conditions obtain—the country (about forty square miles) at the extreme southwestern part of the United States in which San Diego is situated; but even here perhaps once in two or three years, the sultry blasts of the Mojave Desert pass over the low mountain range and parch this favored district. According to the weather bureau, the second favored spot as to summer weather is the extreme northeastern point of the United States (Eastport, Me.), where the prevailing summer winds are from the south, making the weather delightful save on occasional days when the wind goes into the northerly quadrant and sends the temperature down to uncomfortable figures.

People living in the extreme southern portions of the United States have a radically different standard from those along the Canadian frontier. In default of any fixed standard the writer follows the example of the weather bureau, which copies Supan in his maps of the duration of the heated term in Europe; Supan classes mean daily temperatures from 50° (10° C.) to 68° (20° C.) as "warm." While mean daily temperatures above 68° are classed as "hot." This answers very well for Europe, since in Great Britain, Northern France, Germany and the mountainous regions of Central Europe the mean daily temperature rises only occasionally to 70°, and never stays there for any considerable number of consecutive days; but if we examine the mean daily temperatures of the United States, as calculated from many years' observation, we find that the coast of northern Maine, and a portion of northern Michigan, and the immediate coast line of California and Oregon are the only regions where the daily mean temperature does not rise above 68° degrees for several weeks annually. In considering American summer climate the writer adds a third period called "very hot," during which the average daily temperature exceeds 80° F. Greeley, while chief officer of the weather bureau, prepared a chart to show the range of temperature in the summer; he considered as comfortable regions such sections as have normally for less than ninety consecutive days a daily mean temperature above 68°. It is well known that the transition from a very hot district to a comfortable region requires generally a limited amount of travel. In a northern direction from the section of the country designated as "hot" the climate moderates rapidly to the European standard of comfortable temperatures.

It has been found that the region which can be classed as comfortable includes the greater part of New England, New York, and the United States bordering on the Great Lakes. In the lake region, where the prevailing winds have a southerly component, the shores on the northeasterly side are cooler than those on the southwesterly; for example, the difference in latitude is very small between Toledo at one end of Lake Erie, and Buffalo at the other. Yet, from the cooling effect of vapor-laden winds, the mean daily temperature remains at 68° or above for ninety-seven days at Toledo and only sixty-seven days at Buffalo.

Americans seek relief from the high summer temperatures of great towns and cities by fleeing to such densely wooded highlands as the Adirondacks, or the Green or White mountain ranges, which hegira rests on grounds wholly scientific. The opinion, if it does not appear to be quite well established as a fact, prevails that residence at certain elevations above sea-level is beneficial to lung affections. While some believe that the rarefied atmosphere works this improvement, others dwell on the positive benefit flowing from simple conditions of living, regularity of life, and, above all, from the inhalation of a pure atmosphere. Trees and vegetation are, like other substances, heated by the sun and cooled by radiation, but owing to their low conductivity of heat, their highest and lowest temperatures occur at different hours from corresponding phases of the air. The tend-

ency of forests to make nights warmer and days cooler is supplemented in mountainous countries by the system of descending currents of cold air, modifying in an agreeable manner the temperature of the atmosphere at the bases of such mountains or steep acclivities; as a rule the narrower the valley and the steeper its sides, the greater are the chances of cold descending air-currents, which, however, may in some instances be sufficiently severe to test the endurance of invalids. Contrawise the philosophy which draws such a large proportion of summer voyagers to the sea, finds a strong justification in the fact that while the air of the sea-coast is much freer from organic and inorganic impurities than the air of cities, it is also as free from acids as are the plateaus; the climatological importance of seaside resorts is self-evident; the sea heats very slowly by the sun, and cools quite as slowly from nocturnal radiation, so that the daily range of temperature is small. Especially along the sandy shores of Long Island and New Jersey, where the tendency is toward high temperatures by day and low temperatures by night, the sea is a most important factor in ameliorating temperature conditions. The rising of heated air over the sandy regions by day produces an indraught of cool air from the sea, while the warmth of the ocean at night causes a reverse movement seaward of the land air, which is cooled by radiation. However, when from the passage of a storm centre sufficiently distant not to induce rain, but to cause fresh winds, the wind blows steadily from the land, the visitors experience heated periods of great severity. The effects of vegetation and forests modify these unfavorable conditions, so that such strips of the sea-coast as are lined with forest or underbrush are spared these trying changes of temperature. Winds acquire to a considerable extent, the temperature of the regions they pass over, so that it is important to consider what are the prevailing currents of air. This question becomes important a few miles inland from the shores of the ocean or the Great Lakes, beyond which the system of alternating land and sea breezes ceases. A section may, according to the prevailing direction of the wind, be most trying as a summer residence, owing to dry winds heated by the barren soil they pass over; or it may be a comparatively comfortable region, through the cool, vapor-laden winds coming over the surface of large bodies of water of low temperature. The height and direction of mountain ranges, when perpendicular to the prevailing winds, make them drier, so that the country to the leeward of the mountains has hotter summers and colder winters than the region to the windward, for the absence of vapor exposes them to solar and terrestrial radiation. Happily the mountain ranges in the United States are so situated relative to the prevailing winds that these adverse conditions only locally occur, except in the Pacific Coast region, eastward of the coast range. Greeley has reported that the prevailing direction of the winds over such portions of the United States as have been designated as suitable for summer resorts are from the south or southwest, except on Lake Superior, where they are northerly. Fortunately for the seaside resorts, the winds are in general southerly from Delaware to Maine, so that, being tempered by the ocean, they alleviate materially the summer heat.

Cloudiness is an important question, since the relief from the heat of the summer's sun is a material advantage; here New England is slightly favored over New Jersey, to the extent of two or three per cent., and over the lake region to the extent of five or ten per cent.; the least clouds in summer being found over southern Michigan. The number of rainy days is greater during July than August, in New England, the Middle States, and in the vicinity of lakes Huron and Ontario; while in the Lake Superior region the rainy days are more numerous during August. From New Jersey and Pennsylvania northeast to Maine, one must expect rain at least every third day during July, but during August the ratio would be two days per week. This is a phase of summer weather which, for certain classes, is of equal importance with any that has been so far considered—the humidity of the atmosphere. The importance of this component of climate is set forth by a committee of the Colorado State Medical Society, which petitioned the United States Signal Service to furnish data on this subject, which the committee said, "is of the utmost importance to that large invalid class who are troubled with consumption, asthma, malaria and kindred complaints." The committee in question further set forth the equal value of these data to the physician and to the patient, and dwelt on their great importance, with reference to the health of a community. Unfortunately the method by which the humidity of the air has been recorded and discussed by many observers gives results of no practical importance to the invalid, since the "relative humidity," which shows the percentage of saturation, has been generally given, and not the more important "absolute humidity," which shows the true amount of moisture in a definite manner, expressed by grains of aqueous vapor to each cubic foot of air. It is probable that a sufficiently large number of reports would show southward deflections due to the White and Green mountain ranges in New England, and the most elevated parts of the Adirondacks in New York. The tendency of elevation, with its lessened temperature, is to reduce the weight of aqueous vapor in each cubic foot of air; and thus, for patients seeking a dry atmosphere, the high plateaus and the mountain regions will be found most satisfactory. It is true, too, that the lines of equal grains to the cubic foot are nearly parallel with the sea-coast and that the amount decreases as one goes inland. It is important to note the quantity of vapor per cubic foot decreases as one goes northward, and that the absolute amount of water in the air in New Jersey is fifty per cent. greater than in Maine; while the quantity along the Atlantic sea-coast from Hatteras southward is nearly double.

A "dry" summer climate is assumed to be one where the atmosphere contains five and a half grains, or less, of aqueous vapor to each cubic foot, and on this basis it is safe to recommend the northern half of New England and New York, as well as the entire lake region, except, possibly, a few islands or places which are almost entirely surrounded by water.

Climatologists recommend a moderately dry and not too warm climate, as the coast of Maine, with its lying islands, and the southern coast of New England, between Nantucket and Stonington. Westward of the last-named point, although the Connecticut coast is bordered with abundant vegetation, yet the sandy stretch of Long Island, intervening between it and the open sea, affects to a considerable extent the ocean breezes, and renders the summer climate less agreeable; while Long Island and the sandy beaches of the New Jersey

coast are even less desirable, and, apart from the salt air and sea bathing, may be considered as inferior to many portions of the lake region—particularly to those sections of lakes Erie and Ontario, and the extreme northern parts of Michigan. For a very dry climate, not too hot in summer, the White, Green and Adirondack mountains afford the best available, while but slightly inferior in this respect are such parts of West Virginia, Virginia, North Carolina and Tennessee as lie between the Blue Ridge to the eastward, and the Kanawha Ridge, Cumberland and Clinch mountains to the westward. "The summer advantages of the broken mountainous country last referred to, are hardly known to the general public, but with succeeding years and increasing facilities for travel and entertainment, this comparatively unknown section will be resorted to in summer by tens of thousands from the South and Southwest, and in winter from the North and Northwest." The temperature of the ocean has its due effect upon the comfort of the summer visitors to the coast, by softening the temperature of the air. Apart from this, the question of the actual temperature of the sea water is one of great importance when it becomes necessary to take sea baths for health; the highest average temperature of the water along the Atlantic coast occurs at Key West, Fla., being 87½° during July, the month when the temperature is the highest as far northward as Chincoteague, Va., where the July average is 80°, while at Atlantic City, N. J., the highest mean (72¾°) is during August, thence as far as Portland, Me., where the temperature of sea-water falls back to 61°. At Eastport the retardation of temperature makes the highest average (50½°), to come in September. Assuming 68° to be the comfortable temperature for sea bathing, such conditions are found on the Atlantic coast only as far northward and eastward as the entrance to Long Island Sound. From Block Island to Nantucket the mean temperature of the sea averages 68° only for a short time during August, except in shallow and sandy bays, where the August sun raises slightly the temperature of the water at mid-day. To the northward of Cape Cod it is only on rare occasions, and in favored spots, that the temperature ever rises above 65°; while to the eastward of Portland the temperature of the ocean rarely reaches the sixties, and in the extreme eastern part of Maine never does. Along the New Jersey coast, and in Long Island Sound, bathing is comfortable during July, August and September. The incomes and conditions of the greater part of the American people forbid their leaving permanent homes for any considerable length of time, and to such classes it is a matter of great and sometimes vital importance to know exactly what period of the year should be chosen, so that they shall obtain the greatest relief from extreme temperatures during their brief summer outing. It too frequently happens that men and women having but a week's vacation, are tempted by the first heated term to take it before the maximum summer heat prevails; we know the sun is nearest the earth at the summer solstice, the twenty-first of June, but the amount of heat received by day continues greater than that radiated by night for a considerable period after this, reaching its maximum when the amounts received from the sun by day and radiated into space by night are equal. The hottest single day, or even the hottest three days, for any summer cannot be absolutely foretold, since this period may be slightly advanced or retarded by violent atmospheric changes in the shape of severe storms; but the series of observations made by the Signal Service of the Army have been continued for such a number of years that we can say, with confidence based on the normal daily temperatures, as to the dates on which the three hottest days should fall; while these dates vary in different sections of the country, it is fair to say that the hottest three days east of the Mississippi River should occur between the 12th and 17th of July. If, therefore, any single week is to be taken with the hope of escaping from extreme summer heat, it should commence not earlier than July 10, while the hottest part of the year in the Rocky Mountain regions and the entire country to the westward falls, as a rule, in the early days of August, so that travel and residence in the extreme western part of the United States are most objectionable on account of heat from July 15 to August 15.

Turning now briefly to the question of winter resorts we find that climatologists now agree that the elements constituting a perfect winter climate are not all meteorological; while ideal weather is the predominating part of a perfect climate, yet the physical characteristics of certain localities often neutralize the effect of blue sky, balmy breezes and equable temperature; for example, a friable ash-like soil filling the air with fine dust, or the presence of low-lying swamp and morass to send forth noisome exhalations may be important elements in winter climate. I would deal rather with meteorological phases. This includes two important climatic essentials—the purity of the air and the relative dryness of the soil. Other qualities are moderate warmth, small variability of temperature, with less than the average daily range, freedom from excessive phases of either absolute or relative humidity, genial, gentle winds, frequent but not heavy showers of rain, and a large proportion of possible sunshine; a moderately temperate, fairly dry and sunny climate is the desideratum.

Among the winter health resorts there is none more famous than Nice, where the climate is alleged to be all that is desired in the way of softness; but a critical examination of the climatic conditions of Nice obliges one to believe that the flavor of a foreign name and the fashionable repute of the place itself have added largely to its popularity. At Nice nearly every other winter day is sunny, but irregularly cold, and piercing winds sweep over the place, bringing sudden and violent changes in the temperature, twenty degrees or more. Again, the air is so dry that in calm weather the sun acts strongly and induces perspiration at the slightest exertion, dangerous in such a cold, dry atmosphere. The mean temperature is barely 48°, while that of January is but 47°; the temperature occasionally sinks four degrees below the freezing point, and the mid-day temperature is at times as low as 40° to 42°. In January snow falls occasionally on the surrounding hills, and hoar frost is not infrequent. The winds in the last half of February and in March are high and exceedingly trying, owing to the dryness and dust, and such strong winds blow on an average of once in every four days. Of these winds the great Scotch meteorologist, Buchan, has written: "In the south of Europe during the winter and early spring peculiarly dry, cold and violent northerly winds are of occasional occurrence. Of these winds the mistral is one of the most notorious, which is a steady, violent and cold northwest wind blowing from central and eastern France

down to the Gulf of Lyons. It is particularly trying while it lasts to invalids who are spending the winter at the various popular sanatoria which are scattered along this part of the Mediterranean coast. The great cold that took place in the North of Italy and South of France in the beginning of 1868 was a good example of the mistral."

In America we know that the coldest days, along and to the southward of the thirtieth parallel (northern Florida and southern Texas), occur about the beginning of the year. To the northward the coldest period falls later—about one day and a half to each degree of latitude—so that in New England and New York the coldest days are in latter January. St. Paul, Minn., has nearly as many freezing days in February as during January, and in Boston the percentage increases steadily from 74° December to 91° February. Hence February is a month to be avoided in New England and other extreme northern portions of the country by those unable to endure freezing temperatures; the question of moderate temperature is easily determined, since there is but a very small part of the United States which is not subject every winter to freezing temperature—the southern half of Florida, and for a hundred miles inland, the California coast region from San Diego northward to San Francisco and Sacramento. Along the northern limits of the districts named light frosts occur occasionally, and freezing temperatures under rare and unusual conditions, but in the more southerly localities frosts are unknown. Nice is at a great disadvantage compared with a considerable part of the United States in this respect, being surpassed by all central and southern California outside of mountain stations, and the southern half of Florida. Next in importance to the temperature is the humidity of the air, a subject to which the profession generally does not pay due attention, partly through inadvertence and partly through lack of accessible data; the condition of the atmosphere as to moistutre is expressed in two ways, the first of which, often called the "absolute humidity," gives the grains of water present in each cubic foot of air. The second method shows the percentage or ratio of the vapor present to the total amount the air can hold at the actual temperature, and is termed the relative humidity. While at all times sensations of dryness or moisture (and in summer rapid evaporation, which lowers temperature and promotes comfort) depend largely on the relative humidity, yet during the winter season the absolute humidity becomes a most important and potent factor in determining the fitness of any particular climate as a sanatorium. The low absolute humidity at Nice, and other adjacent health resorts of the Riviera, accounts for the ability of cautious invalids to endure the comparatively low winter temperature, while the small amount of aqueous vapor permits the solar rays to transmit their heat without much absorption by the air to the body of the invalid. Should he abandon the sunshine he realizes the force of the Italian proverb: "Only dogs and strangers seek the shade." Since the differences of 30° to 40° obtain at Nice between sun and shade, the need of prudence and experience to preserve or recover health is but too evident. Apart from the effect of absolute humidity directly on the comfort of man, by abstracting heat from the body, may be mentioned the necessary consequence on the respiratory organs, in cases of a very low or a very high degree of absolute humidity. In certain regions, assuming three hundred cubic feet of air to be inhaled daily, a man takes into his lungs in January one hundred and twenty-five grains of water each day, while in other localities he inhales over eighteen hundred grains. Since the amount of moisture exhaled by a man in health is fairly constant throughout the year, it follows that in one case nearly seventeen hundred grains more of water must be extracted from the blood through the lung tissues than in the other case.

The map of absolute humidity for January shows, with other data herewith, that for dry, cold air one must seek Montana, Wyoming, Nebraska, Dakota, Minnesota, Wisconsin, northern Michigan and northern Iowa. Dry, warm air is found in southwestern Texas and the southern portions of Arizona and New Mexico, during the winter. Hahn, the great German meteorologist, has very accurately set forth the fact that there is no element of the climate which so certainly marks its softness or severity as the variation of the average temperature from day to day; to determine this variability of the temperature, the mean is obtained from the changes which take place, whether they are plus or minus, since a sudden fall and rise in temperature are equally harmful.

One of the benefits at winter health resorts is the opportunity and inducement for exercise in the open air, and since invalids shrink from chilling temperatures, there is a necessity not only of warm days, but also absence of high winds and low relative humidity, conditions which, especially the winds, tend to rapidly abstract heat from the body. Besides, clear, bright days without too frequent rain are needful to enliven and cheer the invalid, and remove him from depressing influences.

It will probably surprise Americans to know that rain or snow during the winter months is more frequent at Nice than from western Texas to Arizona, and the percentages are in favor of southern California during January and February. California is supposed by many to have continuous rain during the winter, but Sacramento is favored with substantially as many rainless days in winter as northern Florida, while San Francisco has the same as Augusta, and less than Charlotte, N. C. Thirty per centum is about as high a percentage of rainy days as can be commended to invalids. As one of the ablest and most distinguished physicians of the country has said, little or nothing can be done to modify the course and prevent the development of epidemic diseases dependent on atmospheric changes, but certainly much can be done in determining the meteorological conditions which promote or facilitate the disease, so that with an accurate knowledge of the varied climatic conditions to be found in our vast territory the skilful physician can ameliorate the conditions, check the disease itself, or better, forestall it by sending those liable to attacks into a favorable and proper climate selected with care and precision.

Local Anesthesia for Inflamed Tissues.—A valuable anesthetic for inflamed tissues can be had by adding a few drops of 1-1000 solution of adrenalin to a 1-2 to 1 per cent. solution of cocaine. In injecting this, the first result is an anemia of the skin, due to its action on the vaso-constrictors, followed by a deep anesthesia. Incisions can be made into inflamed tissues with the loss of very little blood, and the method is well adapted for furuncles, anthrax, etc.

THE FIGHT AGAINST TUBERCULOSIS.

BY G. R. JOHNSON, M.D.

THE ordinary method of entrance of the tubercle bacilli to the lungs, both clinically and experimentally, is through the air inspired. It was Tappeinier who suggested the possibility of the transmission of phthisis by the inhalation of phthisical sputum scattered in the air by coughing, experimenting upon dogs at the Munich Pathological Institute which showed that comparatively small quantities of phthisical sputum were sufficient to produce tuberculosis in various forms in perfectly healthy dogs. Tubercle bacilli retain their vitality in dried sputum for long periods and it has been proven repeatedly that tuberculosis may be produced in animals by impregnating the air which they breathe with dried and pulverized sputum; the mixture of phthisical sputum with water, and the administration to animals by inhalation through the use of an atomizer starts up tuberculosis. Dogs rarely die naturally of tuberculosis, yet they rapidly succumb to infection in this manner; how much more liable are the far more succeptible lungs of the human subject exposed to danger. The quantity of the virus contained in the inspired air must be much less under natural conditions than in such experiments, but in susceptible persons the duration of the exposure far more than counterbalances this difference. Old, cheesy, calcareous, or fibroid masses, the remains of a former local tubercular process, are found in the lungs of subjects, otherwise free from tubercular lesions at autopsies. Tuberculosis with primary or secondary implication of the lungs can be produced by feeding animals with tubercular sputum, and occasionally it has followed the ingestion of the tissues of tubercular animals, and the milk from tubercular cows despite Koch's denial. Milk from tubercular cows only contain tubercle bacilli when the udders are affected. It is probable that tuberculosis in the human being may sometimes be produced by the milk from diseased animals. The tubercular ulceration in the intestines, which occurs so frequently in children connected with tuberculosis of the lungs, may be caused by swallowing the tubercular sputum. In some cases we find that the pulmonary affection is slight and recent, or quite absent; probably in these cases the disease has resulted from milk or food containing tubercle bacilli.

Tuberculosis in the bones, joints and lymphatic glands, may result from the introduction of the bacilli into the lungs through the inspired air, their entrance into the blood or lymphatic current of the lungs without the reproduction of a local pulmonary tuberculosis, and their deposition and development in some tissue rendered susceptible to their action by traumatism, previous disease, or impaired vitality. Having obtained a lodgment in this manner, they may again later make their way into the circulation, and finding now a favorable soil and lodgment in the lungs, produce secondarily a pulmonary tuberculosis. This, of course, does not constitute a new avenue of admission to the lungs, but explains how in some cases primary tuberculosis of other organs may be perhaps produced by the entrance of the bacilli through the inspired air, and the secondary production of the pulmonary infection. Clinical observation shows that there is comparatively little likelihood of bacillary infection when there is no constitutional enfeeblement, either inherited or acquired, unless there is a long continued and close exposure of infection; and yet under these conditions cases of infection have been reported. Perfectly healthy persons descended from healthy families, by long attendance upon phthisical patients, have themselves become phthisical, and died; it is hard to bring forward in any case absolute proof of the production of the disease by this exposure, for the disbelievers in this theory would show that in perhaps an equal number of perfectly healthy persons from healthy families, who were not wittingly exposed to infection, phthisis also has been reported. The difficulties are almost insurmountable in the way of absolutely proving in any previously healthy person that the development of tuberculosis has resulted from exposure to infection at a certain period. These difficulties arise especially from the frequency of the disease and the consequent almost constant exposure to it, the insidious nature of phthisis in its inception, and the impossibility of showing the absence of an hereditary or acquired susceptibility, or even the absence of incipient phthisis in any person prior to the time of a constant and protracted exposure to tubercular infection, at which time phthisis might be presumed to have been contracted. The question of the development of the disease under such conditions is chiefly one of observation and opinion, and not one susceptible of proof. The possibility of such infection, however, cannot be denied when once it has been shown that the tubercle bacillus is the cause of phthisis; that the bacilli are present in the breath of phthisical patients and in the air of hospital wards containing cases of tuberculosis; and that the disease can be produced in animals by the inhalation of dried sputum or cultures of the bacilli. Notwithstanding this, however, an exceeding close and prolonged exposure, such as occurs between wife and husband, one of whom is the phthisical, seems to be usually requisite for the transmission of the disease to healthy persons; the evidence in favor of this truth is very great. The history for many years of the hospital for pulmonary diseases in London, shows that no larger proportion of the attendants develop phthisis than do those in other employments. The Conseil d'Hygiene et de Salubrite, of France, agreed on the following decision many years ago: "As the sputum of tubercular patients contain the most active agent of transmission of tuberculosis, it ought not to be thrown on the ground or floor, nor allowed to cling to the clothing or linen. Phthisical patients should use spittoons filled with sawdust, and these should be washed daily with boiling water, and the sawdust should be burned. In schools, workshops, barracks, hospitals, etc., these rules should be rigidly carried out. Rooms occupied by phthisical patients should be thoroughly disinfected after they have been vacated, and especially so if the patients have died of this disease. Clothing, linen, etc., should be boiled for several hours, or soaked in a disinfecting solution before being again used." Biggs teaches that the development of tuberculosis after exposure to tubercular infection resolves itself finally into simply a question of the ratio between the intensity and duration of the exposure, and the susceptibility of the individual to the disease at the exposure; some persons are far more susceptible than others to the poison of the various infectious and contagious diseases, and especially to phthisis. This susceptibility seems hereditary in many families, and not only differs in different persons, but varies in the same person at different times. The greatest precautions should be observed under all conditions to limit

and prevent as far as possible the exposure of healthy persons to tubercular infection. The following proposition has been experimentally proven by Watson Cheyne in regard to many of the organisms of the acute infectious diseases, namely, —"That the pathogenic dose of a virus varies inversely with the predisposition of the animal to the disease in question," and it holds equally good in regard to at least one of the chronic infectious diseases, phthisis. The question of bacillary infection under all conditions will become simply one of the ratio of intensity of exposure to susceptibility; with a sufficient intensity and prolongation of exposure to tubercular infection, every person would eventually develop phthisis, but that, under natural conditions, the intensity of exposure required to overcome the insusceptibility of many persons is fortunately never touched.

Crowded cities, closely packed tenements, poorly ventilated homes, habitations from which the sunlight is excluded, all tend to lower cellular resistance, and predispose phthisis. In these regions tuberculosis should be diagnosed in its incipiency, to be remedied and arrested by a removal from these baneful influences to quarters where abundant fresh air and sunshine can be enjoyed. The etiology of phthisis, therefore, teaches a valuable lesson, which is, that in order to increase cellular resistance, to make the patient less likely to suffer from the ravages of the bacilli, an abundant supply of fresh air and sunshine must be given. Fagge says: "Food, insufficient in quantity and bad in quality, is believed to be among the conditions which tend to produce phthisis; but I am not aware of any positive proof of this, such as would be afforded by cases in which it could be shown to be the principal cause of the disease." There can be no doubt that insufficient food, a continuously bad diet, added to other depressing factors, or to a proclivity to tuberculosis, is sufficient to lower the resisting power of the patient, and make him prone to phthisis. Hutchinson speaks of a deficiency of fatty matters, such as butter, oil and various forms of animal and vegetable fat, which is influential in causing scrofula. Factors which give rise to scrofulous disease must necessarily increase the tendencies to tuberculosis, for we have now learned to speak of scrofulosis and tuberculosis as almost synonymous. Laborers who work in close rooms, receiving wages which allow an abundant supply of wholesome food, are more likely to develop phthisis than those who work in the open air for small wages, with a poor diet. It is evident, therefore, that bad air has more influence in the development of consumption than bad food; but improper food diminishes the resisting powers by causing anemia, inanition, chronic, gastric and intestinal catarrh. It is highly improper for a tuberculous mother to nurse her offspring, for she not only depletes herself by nursing her babe, but she is giving nourishment which cannot be equal to the standard of normal human milk, also increasing the chances of conveying the disease to her child by continuous close contact.

The disease is more readily transmitted to persons engaged in occupations which are sedentary, and which are carried on in-doors; the savage rarely finds phthisis among them, but with every addition to his clothing and to the comfort to his tree or cave, his proneness to it increases. In the higher classes of patients, a sedentary life operates as the principal cause of its greater frequency among females. The disease is more fatal to tradesmen than to men of leisure, more fatal to artisans than to tradesmen. Hawkers, standing on the streets, and exposed to all inclemencies of weather, have the advantage over men employed in workshops. Among printers those who had the greatest amount of air space in the workrooms have the smallest number of consumptives and catarrhal diseases, and the number increases in direct proportion as the air space diminished. Other chief causes which favor the development of phthisis are found in workmen in fine dust of any kind, of carbonic or other noxious gases, those exposed to great vicissitudes of temperature, inhaling hot air, either very dry or very moist, working in a cramped posture, and thus interfering with free respiratory action. The excess of phthisis in this class of workmen cannot be attributed to contagion or infection. Many of these cases simulate the bacillary disease, but are of an inflammatory character at first; later have tuberculosis superadded, while some are cases of fibroid phthisis—more properly called chronic interstitial pneumonia. Among the foreign substances that gain entrance into the air cells and lung tissue, to act as factors in causing the disease, we have carbon, oxide of iron, quartz, sandstone or clay, cotton, and flax. In those predisposed to phthisis the habit of tight lacing, a faulty carriage of the body, or any occupation which interferes with free and full expansion, act as predisposing causes, and may be potent agents in hastening the development of the disease. The excessive use of alcoholic liquors has long since been known to hasten the onset of the disease.

Hirsch claimed years ago that neither geographical position, nor temperature of a region, has any influence upon the prevalence of phthisis. He holds that there are parts of all zones that are free from the disease, but there is no zone in which the disease is not found. "The disease exists in all climates, tropical, temperate and arctic; apparent exceptions to this serve only to bring into stronger relief the much greater importance of local than of general influences. According to the common statement, it is more prevalent in the tropics; and as far as the absolute number of cases is concerned, this is no doubt true, for the population is many times more dense than in the north. Whether it is relatively more frequent is a very different question, the final answer to which will require vast statistics, yet to be compiled, the labor and record of many generations." As long ago as 1862, Bowditch, of Boston, in an address before the Massachusetts Medical Society, brought forward a mass of evidence which led him to believe that, in that state, consumption, instead of being equally diffused through all parts of it, prevails especially in such places as are situated upon a damp soil, and seldom occurs when the soil is dry.

All diseases which in any way affect the development of the body in the child, affect its nutrition in the adult. There are a score of diseases which are dependent upon faulty feeding or improper hygiene during early life, each one of which lowers the resisting powers, and leaves indelible marks upon these unfortunate creatures. Syphilitic patients frequently succumb to a rapidly destructive tuberculosis. Many of these patients are addicted to sexual excesses, dissipate, indulge in the free and immoderate use of alcoholic liquors—all factors which hasten the onset of the disease. A large number of diabetic patients die of consumption—a fact that has been noticed by most medical writers. Frerich says: "Diseases of the lung are the

more important forms of disease which are brought about by diabetes, and in this way nearly one-half of all diabetics make their exit from the world." It was held years ago that malarious diseases antagonize the virus of phthisis. For some time this doctrine was entertained, but Hitsch investigated the question, and found that there was no antagonism, and that phthisis was as readily transmitted in malarious as in any other regions. A conclusion meeting the experience of all who practice in malarial regions. Traube never found a case of consumption in a patient with a mitral stenosis, and it seems to be conceded by most medical writers that this form of heart trouble seems to be an almost complete bar to phthisis. Yet other valvular lesions are often associated with consumption, and it is probably a coincidence. Emphysematous and asthmatic patients seem to enjoy immunity. Tuberculous disease frequently takes its start after measles and whooping-cough. It is probable that in these cases there existed a latent tuberculosis which was awaiting a factor to kindle it. Pregnancy and child-birth seem to be factors in the production of phthisis. In the major portion of cases these conditions aid in debilitating those in whom the germs of the disease are awaiting some agent to lead them from their resting-place. Primary haemoptysis can give rise to phthisis. Pleurisy is still regarded by some as a cause of phthisis. In looking over records one will be surprised at the large number of pleurisies that ultimately proved tubercular. Elsner gives these conclusions:

1. That phthisis pulmonalis in the majority of cases means phthisis tuberculosis.

2. In phthisis tuberculosis we always have the presence of the bacillus of tuberculosis.

3. The bacillus does not find a suitable habitat in normal respiratory organs.

4. There are antecendent diseases which prepare a resting-place for the bacillus, and thus lead to phthisis.

5. Occasional cases of lung disease pass to a fatal termination with all the symptoms of tuberculosis, yet never become tubercular, never show the presence of the bacilli.

Since phthisis is practically a world-wide scourge, the first indispensable condition for its development, *viz.*, an abundance of bacilli, is present wherever numerous human habitations are closely aggregated; but these bacilli are naturally present in greatest numbers in an atmosphere charged with the exhalations and contaminated by the sputa of phthisical patients, their quantity being measurably proportionate to the number of consumptives aggregated in a given locality. The usual medium of infection is, thus, the expired air and air containing particles of desiccated and pulverized tuberculous sputa. The possibility of infection from tuberculous domestic animals, as from pet cats and dogs, is also to be borne in mind. Primary tuberculosis of the digestive tract results from infection derived from the last-named sources, but secondary pulmonary disease may be a subsequent result. Primary genito-urinary tuberculosis calls attention to the fact that systematic infection may occur through this channel; and primary glandular, osseous, or cutaneous tuberculosis, although of dubious origin, suggests the possibility that the lungs may be invaded from foci in the various infected organs. The utter impossibility, for civilized man, of escaping exposure to the tuberculous poison, or of repelling the invasion of this invisible and intangible enemy, might well appall the bravest heart were the infection equal in virulence to that of the eruptive fevers; if that were so the larger cities would soon be transformed into vast plague-spots, whence one would flee as from a leprous settlement. Happily, owing to the inherent capacity for resistance against the invading micro-organism possessed by healthy cells, and to the comparatively slow growth of the bacilli, persons of ordinary vigor may long be subjected with impunity to the incursions of these omnipresent bacteria. Every physician is habitually exposed by such close contact as is necessary for the thorough examination of his phthisical patients to their contaminating exhalations, yet does not contract consumption except when deprived of pre-existent immunity by vital depreciation.

The cases usually presenting the second indispensable causal element, *viz.*, inherent cellular weakness, may be roughly classified as follows: Infants of tuberculous, weakly, or diseased parents. Asthenic subjects, and those suffering from acute or chronic disease. Persons already tuberculous. A diseased parental organism may readily transmit to its offspring a cellular decrepitude prone to invite an inroad of the enemy which, in the case of an infant remaining in close relations to its tuberculous parent, constantly besiege a pulmonary citadel already battered and undermined. Children of weakly or diseased parents, asthenic persons, or those suffering from constitutional diseases, whether acute or chronic, and persons already phthisical, being the unfortunate possessors of enfeebled cells, need only be exposed to the specific infection, in order to present the fatal coincidence of conditions necessary for bacillary infection.

Every one showing evidence of cellular exhaustion ought to be speedily removed from contact with tuberculous persons or animals, and those measures adapted to the re-invigoration of their enfeebled cells, to be presently enumerated, immediately inaugurated. Especially they apply with double force to phthisical patients, and in order to prevent auto-reinfection, their sputa should be thoroughly disinfected with strong solutions of carbonic acid or of bichloride of mercury, and finally burned. All of these principals could not be applied to the management of patients in hospitals, owing to space limitations, but phthisical inmates of these institutions ought at least to be isolated from other patients, their sputa and excreta being carefully disinfected. Owners of tuberculous animals must promptly sacrifice them on the altar of devotion to the human species. Rigid governmental inspection of suspected milk and meat should exclude the vesicles of infection from our markets, while cutaneous, glandular osseous, and, whenever practicable, genito-urinary tuberculosis should be promptly subjected to the surgeon.

The prophylactic principles are sufficiently simple, consisting in rational and persistent efforts to prevent the action upon the enfeebled cells of all influences tending to farther impair their vitality, and in the adoption of such measures as will directly augment their power of resistance. Since the attainment of either therapeutic end, on behalf of the pulmonary cells, implies the exertion of a similar influence upon those of all the tissues, it is evident that the curative means directed to the accomplishment of the proposed objects must act upon the system at large. The influences tending to still depress the vitality of degenerate cells, by a general systematic action, are all possible unhygienic conditions, chief among which may be cited impure air,

excessive moisture, insufficient clothing, absence of sunlight, mental distress, low altitudes and food deficient either in nutritious qualities, in quantity, or in both these essential characteristics. The regenerating influences are the conditions directly opposed to those just enumerated; these are exercise in the open air, within the bounds of slight fatigue, preferably taken at such an altitude that the climate may be mild, dry and uniform; sojourn on inclement days, and sleep at night, in well-ventilated and warmed rooms; clothing of a character such as to ensure uniform surface temperature; occasional sponge baths; freedom from care and anxiety; sufficient nourishing food—these have ever been known as the best non-medicinal agencies employed for the restoration of constitutional vigor. To these health-giving measures may be added tonics to re-establish an appetite. Arsenic and quinine are perhaps the best to fulfill this indication, and iron is useful if anemia exist. If there be much prostration a moderate amount of light wine may be advisable, given with or without cod-liver oil containing the hypophosphites of lime and soda.

The dissemination of the truth of this important doctrine should be accomplished by faithful, persistent efforts on the part of individual physicians to impress this vital truth upon the minds of their patients. Serious conviction, true human sympathy, and the sense of a great duty to be performed are the most important prerequisites of success in the proposed crusade. Kindly, convincing arguments and patient reiteration are the weapons with which each advocate should be prepared.

THE CLINIQUE

Chlorosis.—The Use of Iron.—Here is a case very like in appearance to a girl we have just had. You recollect that she had an organic cardiac affection, and with it an anaemia, from which she recovered while the murmur remained. Here is a girl who has a loud murmur over her heart, loudest at the apex. The question is, is it organic or inorganic? In the case of the other girl there was no question, it was presystolic. And there is another point in favor of this being functional. It is really a difficult thing to tell between these murmurs, though the books will tell you it is easy. A few years ago I laid down what I then thought to be a rule to guide as to whether a murmur was organic or inorganic. I said that when there was a doubt as to its nature, if there was heard at the same time with the heart sound a loud venous hum in the neck, both with a high condition of anaemia you would be justified in saying the murmur was inorganic. To bring this sound out well you have to use a stethoscope. She has a good full pulse, her tongue is very pale, the conjunctivae almost colorless. Over the external jugular you hear this murmur. She has the murmur, with a profound degree of anaemia, the red cells being 2,181,250, or forty-three per cent. of the normal; the leucocytes about normal, and the haemoglobin about eighteen per cent. A typical case of chlorosis. Some people talk of chlorosis as a condition where the number of corpuscles is about normal, and the coloring matter diminished. It may be so at first, but the number grows less and less. The fundus oculi was examined here and nothing found out of the way.

As regards her history: The girl has a mother alive and well; her father, and one sister died of phthisis. She was well as a child except that she had a number of the infectious diseases of childhood. Her present condition she tells us was of sudden development, beginning about three months ago. She has had a considerable degree of headache, becoming tired easily, with muscular weakness and dizziness, but she has never fainted. Fainting seems to have gone out of fashion,—curious thing, illustrating the tendencies of fashion! The girl has slept well, had a poor appetite, and tendency to constipation.

I cannot tell what has brought this on. Sir Andrew Clarke spoke of a "foecal anaemia," due to habitual constipation. I have heard physicians say there is nothing in it, because constipation is exceedingly common, and chlorosis, on the other hand, is rarer. But they are misjudging, because Sir Andrew Clark must have meant that constipation was a cause when there was already a predisposition to anaemia. Virchoff made the observation that anaemia was caused by an imperfect development of the heart and blood vessels, and in autopsies the aorta has been found so small that it would admit only the thumb. I don't like to take exception to so great an authority as Virchoff, yet I do know that anaemia is sometimes congenital. One case particularly I have in mind where the blood of a child only a few hours old was examined, and showed a decided anaemia. This would probably develop and at puberty show pronounced signs. I have not traced the case. There is, therefore, a predisposition to anaemia which constipation may bring out. The patient may be ill-nourished and overworked, which forms another factor.

There are certain diseases which may simulate chlorosis, of which I must warn you. I remember one girl in the Episcopal Hospital who was more chlorotic looking than this one, who was found on autopsy to be a case of granular kidney. Contracted kidney simulates it. Beginning phthisis may simulate it; look out for tuberculosis, bear it in mind, and if there is fever there is a strong chance of its turning out to be tuberculosis. In gastric disease the condition is usually one of hyper-acidity, and singularly enough, not many years ago we were recommended to treat chlorosis by large doses of hydrochloric acid. James Hendrie Lloyd, a distinguished neurologist, told me of a young Swedish woman who was supposed to have chlorosis until she brought in some fragments of a tapeworm she had expelled—not the taenia of pork or beef, but the bottriocephalus latus, which is rarely found in the United States. It causes an intense anaemia, and this woman had it. She had probably acquired it while in Europe, and brought it over here. The bottriocephalus being expelled, the woman got well.

Of course I need not say that iron is indicated here. But where you look into the literature on this subject do not be misled. The digestive disturbances are undoubtedly prominent, and I think ought to be treated. But one authority recommends treating the stomach for four weeks before administering iron. That is perfect nonsense. I would have the woman well in four weeks, while he was preparing to cure her. I would not begin the iron immediately, but in a few days. There are all the forms of iron that can be given, and finally you can give it hypodermically. One young girl who could not take iron in any form,—and she really could not—was cured by the hypodermic use of ammonio-citrate of iron in one-half or one grain doses. It is painful, but it may be the best thing, and it was used also by J. M. Da Costa a number of years ago, though he did not originate it. It was tried long ago in Europe. When iron cannot be taken by the stomach, it can be in this way. The fact

that it can be goes to upset the theories as to the modus operandi of iron. Now I don't care what preparation of iron we give to this patient. If we give an organic one and it does not help her speedily, we can give an inorganic one, as iron filing, or iron reduced by hydrogen, or saccharated carbonate or sulphate; or—one of the best—the protochloride, the French preparation. It is believed that every preparation of iron is converted by the stomach into the protochloride, so we might as well give it at first.

Clark, believing that the disease was due to constipation, gave as a laxative:

℞ Ferri Sulph.....gr. iv or v.
Mag. Sulph.....℥j
Acidi Sulph. dil.....m. x.

With a little tincture of ginger or infusion of quassia.

Or he gave sulphate of iron, bicarbonate of soda and sulphate of soda, the vehicle being chloroform water. Clark had these two prescriptions; he had his acid mixture and his alkaline mixture, and apparently he could not know until he tried which one of them would agree. So he would try one, and if it failed try the other; and if neither would agree he would come back to Blaud's pill, which is the best thing after all.

Remember that if you cannot give iron any other way you can give hypodermically the ammonio-citrate, one grain in ten minims of distilled water. Inject it very slowly and deeply into the back, where the pain is comparatively slight. If the girl improves and her blood count comes up to the normal, her murmurs will disappear. If they do not, we will have to admit we were wrong, and that there is a change in the mitral valve. I think they will entirely disappear.

Rickets, with a Clinical Illustration of Knock-Knee.—In this child, which has not been nursed from birth, the principal deformity showing is knock-knee. The chest is also deformed. There are prominences where the ribs are attached to the sternum, the "rachitic rosary." Below the ribs you see a depression which is called Hutchinson's groove. Below this the abdomen is prominent. This occurs in any child which has been improperly fed. Enlargement of the liver and spleen, together with the narrowness of the chest, produce the deformity of the abdomen. The abdomen is not so very prominent in this case. He has a deformity of the spine also. This is usually treated by a spine brace for fixation. The deformity here is usually a posterior one. The deformity of the knee joint is the mild characteristic in the case.

After the child is three or three and a half years of age the bones become hard, and then they will remain in the same position. This fact is important for prognosis, for after this age operation will have to be resorted to.

The deformity of the legs is produced by the attitude of the child. Most of them stand on one foot, throwing the other forward. The arms may also be deformed from supporting the body in sitting. The skull is usually a good deal changed. There are two types of head, the long, oval head, or the square one.

This child was brought to us for operative treatment, but it was undertaken to treat him with apparatus. The apparatus that is used consists in making pressure with pads; and you must remember that whenever you make pressure against the deformity in one direction, two pads must make pressure in the opposite direction. It is best to have the apparatus extend up to the waist. Four cases of fracture of the femur from falling have come under my observation in persons using the shorter apparatus. I thought once that we could use aluminum for the braces. But it is a peculiar metal and not strong enough. Most of these braces should be nickel-plated, and are best made with a piece to let them out as the patient grows.

Mellin's Food I have used in a number of these cases with good results. Children who are very anaemic can take the "Eisenzucker" tablets containing three grains of iron. Malted milk I have not so much confidence in. Albuminoid foods are more modern preparations than the peptonized foods. But you should give the patients good food, milk and plenty of bread and butter. Avoid tea and coffee, no pies and cakes. If candy is given it should be given with the food. Oils are good. In country places they make a kind of cake from wheat and rye and barley and milk, and it is very good.

In some parts of the country rickets is not seen at all. Where women use a large amount of fatty food you rarely see it.

There are several different ways of correcting the deformity by operation. Osteoclasts are used a great deal abroad. They are not often used here because other methods are considered more accurate and less brutal. I have seen the osteoclast used in Vienna on a girl of sixteen or seventeen who desired to be a dancer. I have had a good deal of difficulty in using it myself. The objection to this instrument is that you cannot break a part near the joint, and the deformity often is very near a joint. The French claim that they can use it successfully within half an inch of the joint. It is not a nice looking operation. In this city cutting is performed instead, with the osteotome. It is bevelled on both sides, and comes in different sizes. The chisel, on the other hand, is bevelled on one side only. This is the MacEwen instrument, and the MacEwen operation is the one which is now employed, just above the inner tuberosity.

Powers of Microscopes.—All who use the microscope are aware that the limit of its magnifying powers is soon reached, says *The London Telegraph*. Beyond a certain point the image becomes indistinct, large, but not clear, and the imperfections of the instrument are magnified as well as the object. Prof. Dolbear has observed that the powers of the microscope have not been doubled within the last fifty years, though more time and ingenuity have been given to the problem of improving it than will ever be given in the same interval again. It is dangerous, however, to prophesy. One of the exhibits at the Royal Society's conversazione seemed to mark a very distinct advance. Mr. J. W. Gordon showed a high-power microscope, which had in the view field of the ordinary instrument a rotating glass screen, and this, viewed through a second microscope, gave a further magnification of 100 diameters. The ground-glass screen, by expanding the transmitted light wave, causes it completely to fill the aperture of the second microscope, so that the usual imperfections of excessive magnification disappear. A diatom was magnified 10,000 diameters, and its structure was clear and well defined. *London Engineering* remarks that with the same magnification the eye of a house fly would seem to cover an area of 312 square feet. If such powers can be applied there is a new world, or, at any rate, a much larger one, for the botanist.

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NEW YORK, OCTOBER, 1904

The force of character is cumulative. All the foregone days of virtue work their health into this.—Emerson.

DR. SHRADY'S RETIREMENT.

THE retirement of Dr. Geo. F. Shrady from the editorship of the *Medical Record,* after a service of nearly forty years, marks an epoch in medical journalism, and it is a distinct shock to the profession.

In announcing the fact the *Record* states that Dr. Shrady has had editorial control from the very foundation and justly admits that it is to his initiative and executive talent that the paper owes the position it holds to-day in American medical journalism, and we may add, it is one to be proud of. The length of service—which we regret is now at an end—has not been excelled in this country.

After so many years almost any service may become monotonous and we congratulate Dr. Shrady upon his well-earned vacation.

Under Dr. Shrady's editorial control we have seen the *Record* advance from a semi-monthly of twenty-four pages to a weekly of forty. During the period Dr. Shrady has been at the helm, he has chronicled many wonderful discoveries in medicine and taken part in some stirring episodes in medical politics, but he has never lost his equilibrium, his head has always been level, and his judgment of the best. It must be a satisfaction to him as he lays down his burden, to see the profession of the country united upon the question of ethics, the principles for which he so long and earnestly contended.

He was one of the leaders in this State in the contention over the Code Question, the result of which is familiar to all.

He was an ideal editor, forceful, bright, dignified and learned, and stood at the very head of our fraternity.

He is a natural leader of men in the better sense.

He is an authority on sanitary affairs, as well as in his chosen specialty, and New York stands largely in his debt for wise and timely suggestions as to the public health. His resignation is a loss to the public, to the profession to which he belongs, as well as to his confreres of the press.

The host of friends of the *Medical Record* and of Dr. Shrady will unite in making grateful acknowledgment for what he has done to enlighten the profession by improving the character of its literature.

The TIMES offers its cordial greetings and best wishes and hopes that Dr. Shrady will find congenial fields for his energy for many years.

Dr. Thomas L. Stedman, the associate editor, who for twenty years has been connected with the *Record,* has become sole editor, and the personnel of the staff remains unchanged.

HOW EARLY IN LIFE CAN A GOOD, GENERAL AND MEDICAL EDUCATION BE HAD?

IN a previous article on this subject we detailed our own solution of the problem at a time when laws on the subject allowed the greatest latitude, and cited the opinions expressed at the meeting of the American Academy of Medicine in 1897. As differences of opinion arise at every stage of any such problem as this, brevity requires that each writer shall state his own assumptions before attempting the final solution.

With no implied criticism of those who have decided differently, but bearing in mind the constant onward progress of all things in civilization, the legal minimum already established and the necessity of diminishing the recruits to an overcrowded profession, let us assume that the full ideal preparation for medical practice includes the bachelor's course at college.

We must, from personal experience, observation and theoretic consideration accept most heartily the dictum of the late Dr. William Pepper, that a man should enter his actual career as early as is compatible with sound preparation, say at 21 or 22, for a person of good physique normally matured. The economics of this proposition are both financial and ethical. It is neither sound business nor sound philanthropy for a man to spend more than half his expected lifetime in preparation for his life work, and, after childhood is past, we should make the most of the brief period of years in which one has both maturity and the strength and adaptability of youth.

The average youth leaves the high school at 17 to 20. Simple addition of four for college, four for medical school and one for hospital, brings the age for entering life work at 26 to 29. Experience also teaches that the average physician does not acquire a practice that furnishes support and reasonable practical instruction in disease for three or four years longer. While, ever at the age of about 30, the average expectation of life for

a male of good health, is about 35 years, we cannot depend upon more than thirty years of activity. Moreover, while the physician of 24 or 25 may excuse his lack of practice by his youth, and may, with some degree of equanimity, buckle down to voluntary post graduate study for the next three or four years, while taking such cases as come to him, the man of 26 to 29, who finds himself continuing the life of a dependent school boy when his friends have become fairly well established in business, have settled down to married life and are beginning to be of some importance in the community, is placed in a position of constant mortification and discouragement which not only entails personal suffering, but tends to lower the standards of his future work.

The ideal of entrusting the safety of the community to a thoroughly mature and thoroughly instructed physician is good in its way, but the first few years of practice require the ardor of youth, and there is little danger of the recent graduate getting cases beyond his skill and judgment. Rather is his ambition whetted by the minor cases which do seek him, and, as a matter of experience, we find that the men who reach eminence in medicine are the very ones who have hung out their signs at an immature age.

In short, the problem before us is reduced to one of saving time by compromises. It has been remarked for some years that the college course, according to a certain perfectly allowable system of election, comprises nearly two years' work that must be done in very nearly or quite the same form in the medical school. For this reason, several universities have allowed students to take a combined college and medical course in seven years, and there is no obvious reason why, by a little extra study, the time may not be reduced to three. The Pennsylvania board of medical examiners have rather discouraged college training by emphasizing the differences between educational and technical courses. This is all right, in a way, but preparation for development is better, in the long run, than technical completeness, and the board has gone too far in prescribing that the examinee must have done his preliminary work along certain lines, instead of arranging its examinations so as to require that the student should, somehow and some time, have acquired the necessary knowledge.

It is frequently overlooked that the college course bears upon the medical in another way than the mere overlapping of studies. In the first place, if the habits of study have not been in themselves pernicious, the man who has completed a college course, as compared with the high school graduate, has a better thinking and learning machine. It can act more quickly and more thoroughly, and with less consumption of energy. It would be sound logic to deduct a year from the required period of strictly medical study—making no difference in the required examination for graduation and license—simply because of the possession of a college degree, on exactly the same principle that we would expect an eight-horse power automobile to cover the ground more quickly than one of five-horse power.

In the second place, many studies that do not apply directly on the medical curriculum are of great assistance to the medical student. A man who has simply acquired a fairly complete Latin and Greek vocabulary requires only a little help from the purely technical side to understand nearly every one of the some forty thousand technical medical terms. Even mythology aids in understanding many anatomic and therapeutic terms. Botany, of course, bears quite directly on the organic materia medica, as does chemistry on the inorganic.

It is unnecessary to do more than allude to the fact that, with the exception of a few "improper" technicalities, all the physiology, embryology, histology and much of anatomy, all of inorganic chemistry and most of organic chemistry, bacteriology, parasitology, etc., of the medical course could be required on matriculation, thus shortening the customary medical course by nearly or quite half. Medical teachers are as likely to overestimate the thoroughness of their laboratory courses as medical examining boards the difference between college and medical course in physiology, chemistry, etc. Our personal experience has been that the average medical student or recent graduate, in spite of having passed his laboratory examinations satisfactorily, cannot be relied upon to examine blood, urine, stomach contents, faeces, etc. He has not even a theoretic foundation for such manoeuvres, but remembers in a hazy fashion that he went through certain manipulations under the direction of a teacher to attain certain practical ends. The actual details of the manipulations, the exact colors and forms that are significant clinically, he has forgotten. On the other hand, a man who has been through a thorough college course in any of these lines may be ignorant of medical technicalities, but he understands technic and theory. We firmly believe that the technical deficiencies of the college course in chemistry, microscopy, bacteriology, etc., could be supplemented in a month's special summer course, so as to enable the student to examine urine, blood, stomach contents, sputum, etc., as thoroughly as is ever done by any but an expert chemist, bacteriologist, etc., and, more important still, that the student thus trained would not readily forget his teaching.

But even the combined college and medical course has not fully solved the problem propounded. The youth leaving the high school at 18 would finish his medical course at 24, and would be through with his hospital work at 25, under the most favorable combined system of instruction, at one university. Another, perhaps a better solution of the same problem, is to adopt the three-year college course—which is not necessarily a restriction of the meaning of the bachelor's de-

gree, for the high schools now require a four-year course instead of the three-year course in vogue a generation ago, and it is, moreover, possible to make the college boy work harder than he did at that time, without injuring his health. Given a three-year college course, including the scientific branches of medicine, we should have an educational attainment equivalent to that of the bachelor of science—with some Latin and Greek, at least in the high school—and covering nearly the first two years of the present approved medical course. A three-year medical course would be ample to supplement the deficiencies of certain technical parts of anatomy, physiology, chemistry, bacteriology, etc., and to present the so-called practical branches and to provide at least the equivalent of a year's interneship at a hospital. It is rather by concentration of effort and opportunities for combined didactic and clinical instruction and actual experience as interne, that the additional saving of a year's time would be effected. According to this method, the medical graduate would be ready to enter practice at 24, instead of 25. For the average man, this is early enough.

It will be noted that the plans presented do not contemplate a further extension either of the college or the medical course. Such extension is desirable on theoretic grounds, and is in accordance with the natural tendencies of educational institutions. But *it is unwise to prolong the period of preparation for life until there is good evidence that the average longevity is increased, not merely by the reduction of causes of untimely death, but by actual increase of the normal span of life.*

If it is desired to save any further time in preparing for medical practice, it can be done only by skipping a grade in the grammar or high school. In accordance with the suggestion of Dr. James C. Wilson in 1897, it would appear that there is a fair possibility of reducing the grammar school course for children of good health, good mentality and home surroundings that educate imperceptibly. When we stop to consider the matter there seems to be no inherent reason why the American boy cannot reach the stage of algebra and Latin as early as the English boy, that is, by the time he is 12. According to the present standard grammar school system, the child cannot enter school until he is five, and there are nine grades before the high school is reached. However, as the ninth grade anticipates, to a slight degree, the high school course, it is possible by doing extra work to complete the latter in three years. Skipping a grade is an intellectual spurt, impossible for most pupils. A horseman may be unable to pass another in the occasional short windings of a narrow road, yet he could easily distance him if the road were continuously wide enough to accommodate two vehicles. So, many pupils could with ease and safety complete the nine grades of grammar school work, if a special seven years' course were provided in which a slightly greater average intellectual speed could be maintained. Under the present system exactly the same requirement is made of two children, one unable to speak English, utterly without opportunities for home education and with no hereditary brain development, and the other receiving in his every day life education in language, history, spelling, arithmetic, geography, nature study, etc. The public school system cannot recognize social distinctions, and the differences which have been pointed out are not necessarily due to social standing and wealth in the ordinary sense. But the school system can very properly recognize the existence of individual differences in mental capacity, and can provide a special rapid course, to which admission may be granted for high standing at any time, and from which pupils may be withdrawn, if evidence of physical or mental failure appears.

To take advantage of such a special school system does not require a selection in infancy of a medical career. Parents of education and refinement who are able and willing to take a personal interest in their children's physical and intellectual training, may very wisely make ambitious plans early in the child's life, that he shall enter some learned profession, or shall, if his mind so develops, devote himseslf to some line of scholastic work, or that he shall enter business, comparatively young and still with a full education. Wisely directed, a child of good health and active mind can, without forcing, complete the ordinary high school course at 15 or 16. There will need to be a slightly different system of discipline, if the Freshman class at college has an average age two or three years less than at present, and yet we question whether the boy of 16 is morally more vulnerable than the one of 18. In the larger cities there is a well marked tendency toward the establishment of public colleges. These could at least furnish the tuition of the first half of the college course, and the greater universities could admit students to advanced standing.

We do not contend that the educational life of the young should be a constant hurry toward a goal, yet we believe that opportunity for early entrance upon active life should, at least, be possible for such as desire and need it. It must not be forgotten that *to take away the possibility of completing one's institutional education and professional training at an early age, does not mean merely a corresponding delay in reaching active life. It means that this goal will be reached just as early by the majority through omitting an important part of the preparation.*

It is stated in the daily papers that a medical school and a law school will be added to St. John's College, Fordham, in the Borough of the Bronx. The charter of the college, obtained in 1846, is that of a university, and the name of the institution will be changed from St. John's College, Fordham, to St. John's University.

THE CONNECTION BETWEEN INSANITY AND CIVILIZATION.

CAN the idea be true that civilization and insanity stand in the relation of cause and effect? Must the change from a savage state to one of industry and refinement, from a rude struggle for life to a condition protective against the fiercest onslaughts on nature be so unfavorable in its effects on the nervous organism of man that it tends to create and extend disease. These are vital questions which sociologists and neurologists are discussing in grim earnestness.

An English medical journal some years ago summarized the reports of the commissioners of lunacy in Great Britain for a long period of time with the following conclusions: Since the year 1857 there has been a steady increase of insanity in England and Wales, amounting to more than one thousand cases yearly. It is estimated that in the period 1857-1879 the general population of these two countries increased annually at the rate of one and a half per cent. while insanity increased at the rate of three per cent. It is difficult to get the rate of increase in reliable form in this country because of its rapid growth. The population of scarcely one region has been of such a nature as to admit of comparison over an extended range of years, yet probably the increase has been even greater in America.

The serious problem in this increase has been the question of the cause. Must this increase be a necessary concomitant to civilization or can the disturbing elements be eliminated eventually? Undoubtedly the latter aspect is the true one. It is the abuse, not the use of civilization that is at fault. There are certain factors in modern civilizations which are seriously to blame in the production of insanity. Undoubtedly the first is a vicious education, by which is meant a training that is imperfect and injudicious. In former years labor was looked upon as a benefit; the struggle for existence was in a placid current which ran indefinitely from the cradle to the grave. Now education is largely along the lines to receive the most advantages at the least possible effort. The family discipline which made manual occupations look attractive is gone; instead the child of the laborer, the carpenter, the grocer, the baker and the mason is brought up to despise the occupation of its parent and is encouraged to depend upon its wits for a livelihood. The fact that such existences bring disappointment, worry, anxiety and irregular brain action, is ignored or unknown.

Such careers must end in sorrow or disgrace in many instances and adversity is a potent cause of insanity and nervous conditions.

Again the human race seems at last to have realized that "art is long and time is fleeting," for now everybody is in a hurry. It is commented on by all our foreign visitors; the set, anxious looks on the faces of our men, their nervous movements, their restless air. The average man cannot now take time to become educated. He has not time to go into details or get the rudiments. He sees his neighbor forging by and he cannot stay a minute. What would the American public think of the linguist who would spend his life studying the definite article "the," or a scientist who confined his work to one animal or plant! As a result not only is the worry and work of life increased a hundred fold but the underlying foundations are lacking, hence the worry and the work become a thousand times the harder to stand.

Our school system has become largely a crammer of juvenile brains; at last our teachers are seeing this truth. In many cities school duties have been cut down until no home work is allowed at all. This cramming injures the delicate nervous system on the one hand and exposes the muscular and alimentary systems to injury besides. The scholar must be harmoniously developed to become of value to himself and the community at large.

The sudden increase in wealth in large cities has a devitalizing influence on the race. Cities have grown in the past fifty years such as the world never saw before. They supply temptations of all kinds, not merely those actively vicious but the milder, slower means of sapping strength. We see a fine illustration in our football and baseball teams.

There has been kept a series of comparisons for some years of the birthplace and early home of the players on the principal teams of college football and baseball and those in professional baseball. Take the large cities, Chicago, New York, Philadelphia and Boston, and how many men on the professional baseball teams representing these cities are city men? The number is so small that they can be counted in a very few seconds. These athletes have come almost without exception from the country. Again the increase in wages in certain trades has had serious effect upon the mental condition of their members. It is astonishing, for example, how many telegraph operators have serious mental and nervous troubles. These men frequently have positions where they work for a few hours in the day or at night for which they are paid liberally. Left with plenty of time and money, they fall into bad habits, from bad habits into diseased conditions.

These morbid conditions need not necessarily appear at once. Years many elapse before they appear but they will come, even if it is in the next generation. As one brilliant writer has said, "the sour grapes which the fathers ate have sharpened the cuspids of their children."

We cannot believe that a real civilization is the cause of insanity; the discipline necessary to produce a higher state should strengthen the nervous system and help it

to ward off the approach of disease. The educational processes involved should broaden and deepen the import of life and we as physicians must ever keep this fact before our eyes.

THE PREVENTION OF DISEASE.

DR. GOLDSCHMIDT'S review of the history of prophylaxis in the excellent book which bears the above title is extraordinarily interesting, and the regret is excited in reading his work that no very good volume devoted to the history of medicine exists at this time in the English language.

This author finds that the ancient Egyptians regarded cleanliness in the light of a divine commandment; that they had regulations about food, the enforcement of which was entrusted to the priests, and that they tried by quarantine to exclude epidemic diseases. Such laws as these, which were intended in Egypt only for the priesthood, were made binding upon all the Israelites by Moses, the pupil of Egyptian priests. In the Mosaic laws any breach of hygienic regulations was dealt with most severely. To break the laws of health was regarded as a falling away from God—as a sin which God himself would directly punish. The Mosaic proclamation that "thy sins shall be visited upon the third and fourth generation," though cruel and inscrutable to human concepts of justice, nevertheless expresses, as medical men know, the evolution of certain sins of the body. The fact that, although the Jews are no longer a nation and have never possessed a national life for more than five hundred years, this race still exists in what seems its pristine virility, Dr. Goldschmidt attributes in great degree to the scrupulous way in which they have conformed to the biblical laws of hygiene. The best known of these laws relates to food. Here, no doubt, correct observation is mixed up with superstitious ideas. The law, for instance, that the blood of slaughtered animals shall be drained away would seem to rest upon the superstitious idea that life has its origin in the blood, or that the spirit dwells in the blood. Hence the rule that no part of an animal's body may be eaten until all the blood has been removed by salt and water. This custom, despite its partially superstitious origin, is a valuable preventive regulation in hot countries. Salt preserves meat, and meat deprived of its blood is far less apt to decompose. And the law that the flesh of a slaughtered animal should not be eaten later than the third day, and that it must be burned if not then eaten, is certainly a sensible regulation in countries where putrefaction sets in early and proceeds rapidly. Again, the Mosaic prohibitions extend to the eating of such animals as experience has taught may cause disease, such as swine, cats, and of such rodents which Luther translated "rabbits," but which probably are rats. We realize now that these last-named animals may harbor trichinal, plague and various other germs, for which reason Virchow pronounces Moses one of the greatest physicians the world has ever produced. Animals leading a free life, such as beasts of prey or objects of the chase, are not to be used for food, partly to discourage the love of hunting, which the Bible regards a cruel sport, and partly because such animals cannot be controlled and are apt to eat food which may be harmful to men. And the prohibition against eating the flesh of domestic animals was no doubt based upon humane feelings; thus the flesh of horses, asses, mules and camels was not to be eaten.

Circumcision was practiced by many ancient races—as the Arabs—long before the time of Mahommed.

Many regulations issued by Moses cannot be improved upon in our day. Privies were to be located outside an encampment, and the refuse was to be covered with earth. There were altogether exemplary regulations laid down concerning the intercourse of husband and wife. The command to increase and multiply is obviously not nowadays adhered to as strenuously as some self-appointed directors of human destinies would seem to require. Schopenhauer, the pessimist, considers the Jewish people the most immoral in the world, because of their tendencies toward the prolific. The regulation of such matters as these is difficult and perhaps impossible.

For leprosy modern prophylaxis can add nothing to the biblical regulations. A leper had to live outside the camp, and was not to frequent public places. The Talmud contained some absurd rules, yet, on the whole, considers Dr. Goldschmidt, the fundamental principles of health laid down in it are worthy the hearty admiration of scientific men.

The Hindoos inoculated for smallpox long before the time of Jenner. They sensibly forbade anybody going out into the rain unprotected. They had definite and wise rules about washing. Beyond this, however, their medical history offers little of scientific interest.

Among the Chinese the market regulations introduced by Confucius were rather a collection of recommendations than sanitary rules. There were warnings against the produce of the fields when not in season, against unripe fruit, and against birds, game and fish which were not killed according to direction. Only raw food materials were to be offered for sale, apparently because tainted flesh might be disguised by cooking. Food must vary according to the age of the individual. An old man might take many things which were forbidden to a young man. The injurious effects of the excessive use of alcohol seem to have been well known. In order to induce moderate drinking, the ancient emperors ordered the intoxicating rice wine to be drunk from only very small glasses, and that a hundred obeisances should be made before drinking a second glass. Thus it took a long time to consume a little

alcohol. Although the modern Chinese do not scruple to use snakes and rats as food, the market regulations nevertheless warn them that the tail of a chicken, when narrow and full, should not be eaten, nor the flesh near the tail of a wild goose. The stomach of a wild goose and of swine, the meat on the ribs of swans and owls, and the liver of fowl in general are pronounced unsafe. Dr. Goldschmidt presents to us the history of prophylaxis as practised by the Greeks, the Romans, the Babylonians, the Carthagenians, and other races. We may not further review his work, except to note that Saracenic medicine is hardly to be improved upon in the present day, if we may judge from the medical history of this wonderful people.

THE TRAINING OF PATIENTS.

MANY of the ills to which we fall victims could be avoided if we had the proper foresight. Especially is this true in medicine. Not many physicians, busy with their daily cares and responsibilities, look into the future and try to steer their patients in that straight and narrow path which leads to success and contentment. There are many problems assailing the profession, many knotty puzzles which are discussed in medical societies and medical papers which would dissipate into thin air if we trained our patients as we do ourselves.

This training can take many forms; it is an individual problem that each man must work out for himself, yet it bears the same general outline. The properly trained patient avoids running up too large a bill for him to pay conveniently or promptly; he never calls the physician out at night unless it is necessary; he does not become dissatisfied on slight cause and go elsewhere. He has the belief impressed upon his mind that his physician is a man, with a man's limitations and necessities.

Particularly is this true in the matter of fees. If the patient gets the impression that his physician can be paid at any time or not at all; that his bills are carelessly made out and carelessly attended to, the patient will become equally careless. It is no trouble to avoid these errors; it is no loss of dignity in keeping before the patient that his bills should be promptly paid, and the patient will think more of his physician if this is done. Particularly is this true in collecting accounts; it should be done as far as possible by the doctor himself. How often has the physician allowed accounts to run for months or years without a murmur or the wink of an eyelid, and then suddenly turned some lynx-eyed collector on his surprised patients, only to lose both accounts and patients. It may seem disagreeable at first, but after a plunge or two it is not found to be the fact. The successful practitioner as a rule collects his own accounts, leaving to his collector incorrigible cases.

Again, under this heading of the training of patients, fall such problems as are discussed by Mills in a recent paper in the *Journal of the American Medical Association:* Should a physician go out at night to treat a case in a family already owing him a large bill, without any prospect of payment?

Should he treat a case involuntarily given up by another physician, when, in his opinion, the other physician has been unjustly discharged?

Should he adopt any of the measures commonly used by business men for the collection of his bills?

Should he undertake to treat at home, amid unfavorable surroundings, cases which positively need hospital treatment in order to recover?

Should he regulate his charges according to the means of the family treated?

These problems fall entirely within the education of the patient. Educate the men and women of your practice and these puzzles will fade into relics of the dreamy past.

Again, there are only twenty-four hours in the day, and a physician's time is his capital and stock. When his practice grows he should develop a secretary who can take much of the work from his shoulders—an intelligent, well-educated woman can shift cases, get their names, residences, prospective means, etc., and prepare their introduction to the physician. An assistant should take family history, personal history, examination of heart and kidneys, etc., so that the foundations of the cases are ready for the busy practitioner to build. For a man overrun with work to dig for data with each case is a silly waste of time and energy. He should, of course, search for data of facts not brought out, to complete his picture, but the routine groundwork should be prepared for him by his assistants. His work will be done better, his patients will be better satisfied, and he will go to bed at night with twice or three times the results ordinarily accomplished, with far less expenditure of nervous force.

HOW TO COMMENCE A MEDICAL ARTICLE.

NOTHING is more wearing to the average reader or listener than for a speaker or writer to commence his essay with some such remark as this: "In presenting my paper I know that I have nothing new to offer you, but I crave your indulgence," etc. It takes all interest out of the proceeding at once. To begin with an apology is wretched business. Why should a man offer to take up valuable time and space if this is his real feeling about his paper? Moreover, such a statement ought to be an untruth, for any man's experience, carefully followed out, should be of value. We all have different points of view and each observer may see something or say it so that it will be of real interest. Again, it hurts the value of a paper, even if not especially original, to start out in this lame way, for 50 per cent. of readers, at least, skip such articles,

taking the writers at their own valuation. It is well to know what to say and to say it promptly, and when through to stop. The historian who began a history of Delaware County, New York, with an account of Adam and Eve and the details of the flood should not be copied in medical literature.

SCHOOL HYGIENE.

IN an excellent paper contributed by Dr. L. E. La Fetra to the *N. Y. Times,* August 27, 1904, the school needs of the growing child are discussed. The school must cultivate in every individual first, health, strength and energy; after these should come honesty, courage and patriotism; and then the ability to speak, read and write one's own language, together with a knowledge of arithmetic. Upon this foundation all else may be built. The most important part of any school—public, or private, or boarding—is the school room. It should be well-lighted, and the desks should be so arranged that the light comes preferably from the left side and the rear. This will prevent shadows falling upon the writing. A north light is preferable—if possible to be had—being more uniform. The number of feet of transparent glass should be from one-quarter to one-sixth the floor space of the room. No school room should have more than fifty desks; a single teacher cannot well manage more pupils than fifty. Each pupil should have at least fifteen square feet of floor space, and two hundred cubic feet of air space. For forty-eight pupils this would mean a room of 30 x 25 x 15 feet.

The ventilation of each room should be ample, not only through the windows, but by means of inlets high up on one of the walls, and by outlets low down on the same wall.

A good gymnasium, or at least a large play ground, is essential. There should be shower baths, and if possible a swimming tank. The temperature of the school room, is at the Rugby schools from 56 to 60° F. Dr. La Fetra would have a temperature of 62—64° for larger children and from 66—68° for smaller children. Possibly many children might (we think) be chilled by a constant indoor temperature below 70°. The best method of heating is probably that by indirect radiation. There should be fire escapes; and fire drills. In boarding schools the sleeping rooms, whether dormitories or single, should have the sunlight all day, for its germicidal effect.

An ideal location would be to have the school located "on some commanding knoll, with a grove to one side, and sufficient grounds around for games and athletics." Thus would the aesthetic instincts and the love of the beautiful in nature be fostered. In cities the school should, if possible, face a park or a small plot of ground. The roofs of city schools should be used as play grounds. There should be cloak rooms, and individual lockers, so that parasitic diseases may not be communicated by the clothing.

During childhood and youth everything possible must be done in the school to favor the development of a sound physique. There should be games, athletic sports, gymnastics and manual training. "Many of the problems in moral and intellectual training must be referred to the play ground for their solution." This quotation should be read italicized. For any special weakness the gymnasium affords the means of correction. Bathing does more than simply to improve the appearance, cleanse the pores, and promote elimination. Cold baths or shower baths are an excellent stimulant to the nervous system and give tone and vigor to the muscles. In some German cities the shower bath is a compulsory part of the school curriculum,—the children going to the baths in relays during school hours.

The amount of study or muscular exercise which produces normal fatigue in a healthy child may produce abnormal exhaustion in a child who is physically below par. The offspring of alcoholic or neurotic parents, the anaemic children, the mouth breathers and those which have defects of sight or hearing, or which grow rapidly, and especially young girls who are entering the period of adolescence, are very susceptible to collapse from overwork. These abnormal strains are most apt to show themselves in spring after the indoor life of the winter. Awakening unrefreshed in the morning is one of the early signs of abnormal fatigue. Inability to concentrate the attention, loss of memory, irritability, morbid introspection and worry are other signs. St. Vitus' dance indicates a very advanced stage of overfatigue. The observation of Caillé is quoted: "The days of brutally whipping children are gone. We are now refined and whip their brains to death."

The arrangement of studies should be such that those requiring more mental power, such as mathematics and grammar, should be taken up in the morning when the mind is the fresher. This valuable paper is concluded with the following quotation from Huxley:

"That man, I think, has a liberal education whose body has been so trained in youth that it is the ready servant of his will, and does with ease and pleasure all that as a mechanism it is capable of; whose intellect is a clear, cold, logic engine with all its parts of equal strength and in smooth running order, ready, like a steam engine, to be turned to any kind of work and to spin the gossamers as well as to forge the anchors of the mind; whose mind is stored with the knowledge of the great fundamental truths of nature and the laws of her operations; one who, no stunted ascetic, is full of life and fire, but whose passions have been trained to come to heel by a vigorous will, the servant of a tender conscience; one who has learned to love all beauty, whether of nature or of art, to hate all vileness, and to esteem others as himself."

PHYSICIAN VERSUS BACTERIOLOGIST.

IN the above entitled book Dr. O. Rosenbach, of Berlin, protests against "those laboratory bacteriologists who would make all disease a mere matter of bacteria and all treatment a process of germicide." In some respects this book is timely. It is quite essential to recognize predisposing factors of disease by which the organism is made vulnerable to the attacks of specific organisms. It is a matter of elementary experience that in epidemics many—generally most of those who are exposed—escape infection, although the latter are exposed to the same degree as those who fall sick.

However, the tendency to exclusively germicidal methods of treatment has of late been much in abeyance. In tuberculosis especially has the utter hopelessness of destroying tuberculosis tissue merely by the employment of antiseptics been frankly recognized. Of course no intelligent physician will question the value of laboratory experiments. The point concerning them, however, is that these experiments reproduce very imperfectly the conditions present in sick persons. Dr. Rosenbach is skeptical of the power of a specific antitoxin to destroy the effect of the original toxin without doing the body as much harm as the parasite which produces the toxin. Here we do not agree with him. The antitoxin of diphtheria, for instance, certainly saves many lives which the diplococcus would otherwise destroy, and the injected serum has no deleterious effect upon the life thus saved. He inveighs against surgical antiseptics; he would not drench the wound surface with powerful antiseptic drugs. He considers that we shall soon be using antiseptics only for disinfecting the skin, both of the patient and of the operator, and the instruments; that antiseptics will be reduced to an endeavor to avoid the introduction of additional virulent agencies into the organism by operative measures. These considerations do now generally obtain in operations, sterile water or normal salt solutions being practically the only cleansing agents employed within the organism. With Dr. Rosenbach's distinction between asepsis and antisepsis we have long been familiar. He is quite right in his protest against the absurd fear of germs which unnerves so many people—such as the phthisisophobia which is at present rather pervasive. Such fear is quite uncalled for; it makes people flee the sick instead of helping them; the cowardice which it induces results in many an unworthy and inhumane act.

Quite just are his remarks on fashions in medical practice—the tendency to a furor for one mode of treatment of a given disease giving place to a furor for a treatment of exactly a reverse sort. He observes also that the physical constitutions of men change from generation to generation in such a way as to make the medical methods of one era unfitted to one following it. For instance, bloodletting was appropriate for the full-blooded and plethoric habit of another generation. But when a period of general anemic habit followed, bloodletting, though the worst thing possible, was continued with dire effects for a season—until conservative physicians, after sufficient experience of the generally baneful effects of this practice, dropped it. We may not agree fully with Dr. Rosenbach's views, but certainly they are interesting and worthy of consideration. The bacteriologist, however, does work which is very essential to a rational practice of medicine. And when his work is harmoniously blended with that of the clinician, the diagnostician, the therapeutist and other medical confreres, the result is sure to be beneficial.

MINERS' PHTHISIS.

THIS disease has reached a grave stage among the gold miners of South Africa, states Dr. T. Oliver, in a paper read before the British Medical Association. The death-rate among the white rock drill miners of the average age of 35 during the summer of 1903, was 70 per 1,000. The mortality among English coal miners averages 6.3 per 1,000, of ironstone miners 6 per 1,000 and of tin miners 8.1 per 1,000. This enormous difference in mortality rates is probably due to the insufficient precautions taken in the Transvaal mines to prevent the scattering of dust. Therefore it has been recommended that dry mining should be converted into wet mining. Jets and sprays, combined with good ventilation, are suggested. These observations are quite in accord with those of Cornet, by which the latter explains the extraordinarily low death-rate from phthisis among miners generally. Evidently the moisture in the mines, both artificial and such as is occasioned by the atmosphere which is often humid to the saturation point, prevent pathogenic dust from being inhaled.

Dr. Oliver considers that miners' phthisis is not caused by the inhalation of any of the gases present in the mines; that in pneumokoniosis there may be not only excess of fibrous tissue, but even cavitris and tubercles; *that the disease is, however, non-tuberculous.* If the italicized observation be correct it corroborates the experiments of Prudden and others, who have effected tubercle-formation in tissues without the presence of the Koch bacillus.

It is interesting in this connection to note an editorial in the *Iron Age* upon the Water Drill as a Preventive of miners' phthisis. It is here again recognized that one important cause of the great prevalence of this disease in the South African mines is the presence in them of large quantities of dust, and that the remedy is to remove this dust as far as may be. The Transvaal Chamber of Mines in October, 1903, invited a submission of methods to lesson this evil. Among many suggestions two were valuable—one a water drill, the other an atomizer. The Leyner drill seems the

best means of laying the dust, doing so at the very point where the dust is generated. One atomizer submitted by T. J. Britten was found to lay 75 per cent. of the dust in the level where it was tested, and possessed the additional advantage of laying the nitrous fumes generated in the blasting. This process, however, involves the use of a separate machine, whereas the water drill is a part of a regular mining instrument. On this account the latter is likely to be preferred in practical mining.

THE INSPECTION OF CITY MILK.

MANY millions of quarts of milk are consumed every day in New York City, and some of it comes to town from a distance of five hundred miles and is twenty-four hours old when it reaches its destination. The inspectors of the New York Health Department are exceedingly active and careful in the exclusion of impure milk; nevertheless, it is obvious that the formation of a corps sufficiently large to examine all the sources from which this milk is derived is impossible. However, the milk which reaches this city receives careful examination. Quantities of milk—3,000 cans in a single night—are being dumped into the streets by order of the inspectors because its temperature, when it reaches town, is above 50° F. In one instance a whole trainload was condemned on its arrival, states the New York *Medical Journal*. Naturally there is some complaint among the milk dealers, who declare that the quantity seized and condemned sometimes is so great that they are unable to supply their customers. They declare that the inspectors would find the milk all right, so far as temperature is concerned, if they would go to the stores from which it is distributed, instead of taking it directly from the wagon when it enters the city; and that while it is in transit from the car to the distributing point it is difficult to keep it cool. The board's object in declaring milk above 50° F. adulterated, and in thus strictly enforcing the regulation of the health code, which orders the condemnation of adulterated milk, is the preventing of cholera infantum as far as possible. In warm milk (above 50°) bacteria multiply in geometrical progression. And the board considers that the milk should be cared for in such a way from cow to home (if we may use the phrase) that cholera infantum will not be engendered in infants.

A CIRCUMCISION PAD.

Dr. Sommer (Washington, D. C.) has devised an improvement in surgical and obstetrical pads which enables their ready conversion into a pad which permits of circumcision being performed on a fully dressed patient, by simultaneously isolating the extended organ, ligating it in toto at its base, and affording a watertight occlusion around the organ as protection for patient and clothing. By means of a central button of peculiar construction the pad can be immediately reconverted into an obstetrical pad again.

BIBLIOGRAPHICAL

A Text-Book of Human Physiology.—By Albert P. Brubaker, A.M., M.D., Professor of Physiology and Hygiene in the Jefferson Medical College; Professor of Physiology in the Pennsylvania College of Dental Surgery; Lecturer on Physiology and Hygiene in the Drexel Institute of Art, Science and Industry. With colored plates and 354 illustrations. Philadelphia: P. Blakiston's Son & Co., 1904. Pp. 699, octavo, price, $4.

This work, prepared by a practical teacher of twenty years' experience, will be found of great service by the student and the general practitioner, too. The book can be used with advantage in clinical work, in conjunction with treatises on pathology and practice. There is no hesitation in placing it in the front rank of text-books of its class.

Transactions of the American Roentgen Ray Society.—This is the report of the fourth annual meeting held in Philadelphia, December, 1903, and it contains some valuable papers and discussions upon this important subject.

A Handbook of Pathological Anatomy and Histology. With an Introductory Section on Post-Mortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By Francis Delafield, M.D., LL.D., Emeritis Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. Mitchell Prudden, M.D., LL.D., Professor of Pathology and Director of the Department of Pathology, College of Physicians and Surgeons, Columbia University, New York. Seventh Edition, with 13 full-page plates and 545 illustrations in the text, in black and colors. New York: William Wood & Co., 1904. Pp. 885. Price, $5.00.

This classical work, now in its seventh edition, is so well known and widely appreciated that we need only to announce its issue and point out the changes which have been found necessary to keep abreast of the times.

While the general aims of the book have remained unchanged, especial attention is called to the relationships of pathology to the allied phases of biological science, and where it might be done without hazard to the more urgent practical aims of work, to consider disease as an adaptive process, and to view pathology as one aspect of the diverse manifestations of life and of energy rather than as belonging to a special and exclusively human domain.

The vast amount of data in this wide field has made necessary the exclusion in large measure of those phases of clinical diagnosis and practical bacteriology which are now adequately covered in special treatises. The text has been revised, some sections entirely rewritten and much new matter added, including many references in footnotes.

There are a number of new illustrations, with many excellent photographs.

This work belongs in the very front rank.

Clinical Urinology.—By Alfred C. Croftan, M.D., Professor of Medicine, Chicago Post Graduate Medical College and Hospital, Physician in Chief to St. Mary's Hospital, Pathologist to St. Luke's Hospital. Illustrated. New York: William Wood & Co., 1904. Pp. 298. Price, $2.50.

This unique book describes the borderland that lies between the laboratory and the clinic, and it supplies a link that has been missing to many general practitioners. Chemical facts are of little practical use unless we have their biological and clinical interpretation, together with an elucidation of their relationship to normal physiology and to physiology perverted by disease. A book that will aid in our clinical work will surely be welcomed by the profession.

A Handbook of Surgery.—For Students and Practitioners. By Frederic R. Griffith, M.D., Surgeon to the Bellevue Dispensary, New York City; Assistant Surgeon at the New York Polyclinic School and Hospital. 12mo volume of 579 pages, containing 417 illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible leather, $2.00 net.

The author has given us a brief outline of the principles and practice of surgery, written as concisely as is possible with clearness. We are sure it will be valuable alike to the student and the practitioner, because the entire subject of surgery is covered, including all the specialties, as Diseases of the Eye, Ear, Nose and Throat; Genito-Urinary Diseases; Diseases of Women, etc. There are also articles on Life Insurance, Rape, Sexual Perversions, Microscopy, and on many other subjects of great importance to the practising surgeon.

Essentials of Diseases of the Eye.—By A. B. Norton, M.D., Professor of Ophthalmology in the New York Homœopathic Medical College; author of "Ophthalmic Diseases and Therapeutics," etc. 349 pages. Cloth, $1.75, net. Postage, 10 cents. Philadelphia: Boericke & Tafel. 1904.

This book is intended for the general practitioner, and covers the common diseases which he is called upon to treat.

A Treatise on the Principles and Practice of Gynecology. By E. C. Dudley, A.M., M.D., Professor of Gynecology in the Northwestern University Medical School, Chicago. New (4th) edition. Revised and enlarged. Octavo, 771 pages, with 401 illustrations, of which 50 are in colors, and 18 full-page colored plates. Cloth, $5.00, net; leather, $6.00, net; half-morocco, $6.50, net. Lea Brothers & Co., Philadelphia and New York, 1904.

The subjects in this book have been arranged so far as practicable according to their pathological and etiological sequence, so that the student has constantly before him the physiological and pathological unity of the part he desires to study. The work has won a place in the front rank of textbooks. The present edition includes the recent advances. The sections relating to General Diagnosis, Local Treatment, Major Operations, Drainage, Urethritis, Cystitis, Ovarian Tumors, Embryology, Malformations, and the Treatment of Salpingitis, Ovaritis, and Pelvic Peritonitis, have been subjected to special revision and to a great extent have been rewritten, with practical additions.

Not less sweeping than the revision of the text has been that of the illustrations to the exclusion of all borrowed engravings, and the introduction of more than three hundred new ones all reproduced from drawings specially made for the book; but what is more important than this, all minor and major manipulations and operations have been illustrated to show the several procedures as they take place step by step, each operation being set forth in a series of drawings; for example, twelve drawings describe the steps of hysteromyomectomy, and thirty-two explain perineal lacerations and the steps of perineorrhaphy. The surgical instrument catalogue element has been eliminated; all instruments, so far as practicable, being shown as they appear in actual work.

A Textbook of Materia Medica.—Including Laboratory Exercises in the Histologic and Chemic Examinations of Drugs. For Pharmaceutic and Medical Schools, and for Home Study. By Robert A. Hatcher, Ph.G., M.D., Instructor in Pharmacology in Cornell University Medical School of New York City; and Torold Sollmann, M.D., Assistant Professor in Pharmacology and Materia Medica in the Medical Department of the Western Reserve University of Cleveland. 12mo volume of about 400 pages, illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible leather, $2.00, net.

Students of medicine and pharmacy will find this book useful. The authors are teachers of experience, and present a work on the subject of Materia Medica in an entirely new way, teaching by actual experimental demonstration. Part I comprises a guide to the study of crude drugs, both official and unofficial; while in Parts II and III the histologic and chemic examinations of drugs are considered in a scientific, yet clear and simple manner. All the histologic descriptions are supplemented by laboratory exercises of important drugs, so that the student becomes insensibly acquainted with their construction. Throughout the entire work general stress is laid on the recognition of adulterations. The work is reliable, practical, and excellent in every way.

A Textbook of Diseases of Women.—By Charles B. Penrose, M.D., Ph.D., formerly Professor of Gynecology in the University of Pennsylvania. Fifth Edition, Thoroughly Revised. Octavo volume of 539 pages, with 221 fine original illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $3.75, net.

With astonishing regularity a new edition of this excellent textbook is called for, and it appears to be in as great favor with physicians as with students. Indeed, this book has taken its place as the ideal work for the general practitioner. The author presents the best teaching of modern gynecology, untrammeled by antiquated ideas and methods. In most instances only one plan of treatment is described.

The new edition has been carefully revised, much new matter has been added, and a number of new original illustrations have been introduced. In its revised form this volume continues to be an admirable exposition of modern gynecology.

Pathological Technique.—A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. Mallory, M.D., Associate Professor of Pathology, and J. H. Wright, M.D., Instructor in Pathology, Harvard University Medical School. Third Edition, Revised and Enlarged. Octavo, 469 pages, with 140 illustrations. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $3.00, net.

The third edition of this successful work keeps pace with the great advances made in pathology, and its value as a laboratory and post-mortem guide remains undisputed.

In subjecting this book to thorough revision the authors have kept in view the needs of the laboratory worker, whether student, practitioner or pathologist, for a practical manual of modern methods in the study of pathological material. Many parts have been rewritten, many new methods have been added, and the number of illustrations has been increased.

Radiotherapy, Phototherapy and High Frequency Currents.—The Medical and Surgical Applications of Radiology in Diagnosis and Treatment. By Charles Warrenne Allen, M. D., Professor of Dermatology in the New York Post-Graduate Medical School. Octavo, 618 pages, 131 engravings and 27 plates. Cloth, $4.50, net. Lea Brothers & Co., Philadelphia and New York.

Recent discoveries in radiant energy have developed a new and important system of therapy. In fact, such positive results have already been achieved in maladies which were hitherto considered intractable, as to warrant the recognition of Radiotherapy as a very efficient addition to the resources of the profession. Dr. Allen's work is peculiarly opportune. It is based upon practical experience, as well as upon a careful review of the great mass of literature on the subject coming from almost all quarters of the globe. Naturally, in a science so new, much faulty observation has been encountered, and in this volume no effort has been spared to eliminate the errors and to present the subject correctly and abreast of its position to-day. Ample information is given upon the physical as well as the technical side, to equip the reader for the selection and management of appliances. The object of the work is always practical, and it has been the earnest endeavor of the author to enable his readers to secure to their patients prompt and permanent benefit. Accordingly, much attention is given to questions of diagnosis and treatment, and, inasmuch as such powerful forces as are treated of in this volume may do harm if improperly applied, cautionary directions are carefully given and exact instructions for the determination and measurement of dosage.

The author has by no means lost sight of the demands of undergraduate students, and his long teaching experience has enabled him to produce a work which is admirably adapted to teaching purposes.

The Illinois State Board of Health.—Report of the Sanitary Investigations of the Illinois River and its tributaries with special reference to the effect of the sewage of Chicago on the Des Plaines and Illinois Rivers prior to and after the opening of the Chicago Drainage Canal.

The Theory and Practice of Infant Feeding, with Notes on Development.—By Henry Dwight Chapin, A.M., M.D., Professor of Diseases of Children at the New York Post-Graduate Medical School and Hospital; Attending Physician to the Post-Graduate, Willard Parker and Riverside Hospitals; Consulting Physician to the Randall's Island Hospital. Second edition, revised, with numerous illustrations. New York: William Wood & Co., 1904; octavo, pp. 342.

The author of this valuable book has never accepted the chemical basis of infant feeding and he is gratified to find that his views are being adopted by the most experienced investigators. Many of the supposed differences between breast milk and cow's milk have disappeared. Important discoveries in respect to cow's milk have recently been made which tend to make clearer the physiology of milk and the true principles of artificial infant feeding. The present edition has been carefully revised and some portions rewritten and extended, with a view to a more lucid presentation of this important subject.

Von Bergmann's Surgery.—A System of Practical Surgery. By Drs. E. von Bergmann, of Berlin, P. von Bruns, of Tübingen and J. von Mikulicz, of Breslau. Edited by William T. Bull, M.D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. To be complete in five imperial octavo volumes, containing over 4,000 pages, 1,600 engravings and 110 full-page plates in colors and monochrome. Sold by subscription only. Per volume, net, cloth, $6.00; leather, $7.00; half morocco, $8.50. Volume IV. 757 pages, 345 engravings, 16 plates. Lea Brothers & Co., Philadelphia and New York, 1904.

The fourth volume of this colossal encyclopedia of the surgery of the world is before us. Dr. Bull truly says that many of its chapters exceed in scope and detail special treatises which have been published in their respective subjects.

The great value of this work lies in its practical and clinical character, as shown by its pathological data, details of original research and statistical facts.

The present volume covers the important subject of the whole alimentary tract including Hernia. The arrangement of this work in volumes with regional and systemic division of subjects, simplifies and facilitates its study. Within a few months we are told the fifth and final volume will issue, which is almost phenomenal as to time.

The publication of a work of 4,000 pages, with 1,600 engravings and 110 colored plates, in less than a year is a great undertaking, characteristic of the methods and demands of our country.

The greatest care has been bestowed upon every detail of editing and publishing; in fact the American edition is far richer in engravings and plates than the German. The special features characteristic of American Surgery are fully reflected, so that the work is thoroughly adapted to the requirements.

The Practical Application of the Rontgen Rays in Therapeutics and Diagnosis.—By William Allen Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois; and Eugene W. Caldwell, B.S., Director of the Edward N. Gibbs Memorial X-Ray Laboratory of the University and Bellevue Hospital Medical College, New York. Second edition, thoroughly revised and enlarged. Handsome octavo volume of 690 pages, with 195 illustrations, including four colored plates. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $5.00 net; sheep or half morocco, $6.00 net.

This elaborate work has attained the distinction of two large editions in one year—a proof not only that such a work was required, but also of the book's practical value. The vast amount of literature accumulated during the past year has been carefully digested, and the latest knowledge and advancements incorporated. A practical feature of the work lies in the fact that nearly all the illustrations represent actual clinical subjects, showing the benefits of the X-rays at various stages of their application. The chapters by Caldwell give full details regarding the use and management of the apparatus, the text being fully illustrated with

many photographs and drawings, including four full-page colored plates. The second edition has been brought strictly down to date, and much new matter and a number of new illustrations added. The book can be depended upon as presenting the latest and best information upon the subject.

A Text Book of Pathology.—By Joseph McFarland, M.D., Professor of Pathology and Bacteriology in the Medico-Chirurgical College of Philadelphia; Pathologist to the Medico-Chirurgical Hospital, Philadelphia. Handsome octavo volume of 818 pages, with 350 illustrations, a number in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $5.00 net; sheep or half morocco, $6.00 net.

It was with anticipations of much pleasure and interest that we began the review of this work and our greatest expectations were more than fulfilled. The book is excellent in all respects. There are a number of beautiful illustrations in colors, printed directly in the text. The author's thirteen years' experience as a teacher of this subject, besides his extensive personal research in the laboratory, has fitted him most admirably to write a text-book on pathology, and this superb forelying work is all that any one—student or practitioner—could desire. Unlike most works on pathology, the subject is treated not from the professor's point of view, but from that of the student, the many difficult theories of the science being explained in clear, concise language. The book stands in the very front rank of its class. The publishers are to be congratulated for their part in the undertaking.

Magee & Johnson's Epitome of Surgery.—A Manual for Students and Practitioners. By M. D'Arcy Magee, A.M., M.D., Demonstrator of Surgery and Lecturer on Minor Surgery; and Wallace Johnson, Ph.D., M.D., Demonstrator of Pathology and Bacteriology in Georgetown University Medical School, Washington, D. C. In one 12mo volume of 295 pages, with 129 engravings. Cloth, $1.00, net. Lea Brothers & Co., Philadelphia and New York, 1904.

This little book gives the essentials of modern surgery in a form for quizzing purposes, the questions following each chapter.

Genito-Urinary and Venereal Diseases and Syphilis.—A Practical Treatise for Students and Practitioners. By Robert W. Taylor, A.M., M.D., Clinical Professor of Genito-Urinary Diseases in the College of Physicians and Surgeons, New York. New (3d) edition. Revised and enlarged. Octavo, 757 pages, with 163 illustrations and 39 plates in colors and monochrome. Cloth, $5.00; leather, $6.00; half morocco, $6.50, net. Lea Brothers & Co., Philadelphia and New York, 1904.

This is a most comprehensive work, embracing the entire range of diseases affecting the genito-urinary organs of both sexes, excepting those which are purely gynecological. In addition to the non-specific ailments, gonorrhœa in all its phases and syphilis in all its conditions and relations have been fully considered. The author has endeavored to present trustworthy, conservative and practical treatment in full detail, and while surgery proper has received ample attention, it is considered as being but a part and not the whole of genito-urinary therapeutics.

In preparing a third edition the distinguished author has endeavored, as in previous editions, to present a practical, up-to-date, compact treatise, adapted equally to the needs of students and practitioners. His aim has been to avoid both the tediousness of an encyclopedia and the disappointing brevity of a compend, and to present a thorough, systematic description of the cognate subjects treated in a terse, clear manner. The text has been most thoroughly revised to date. Many new sections have been added to present the salient features of progress. Dr. Taylor's work has always been known as being fully illustrated, and in this edition many new engravings and plates have been added. It is worthy of note that nearly all of the illustrations have been made under the personal supervision of the author.

The Principles of Hygiene.—A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M., M.D., Assistant Professor of Bacteriology, University of Pennsylvania. *Second Edition, Thoroughly Revised.* Handsome octavo volume of 536 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $3.00, net.

The author has given his book a critical revision for this new edition, and in its present form it represents the practical advances made in the science of hygiene to date.

The volume is intended to meet the needs of the students of medicine in the acquirements of a knowledge of those principles upon which modern hygienic practices are based, and to aid physicians and health officers in familiarizing themselves with the advances made in hygiene and sanitation in recent years. The rapid strides made in our knowledge of the entire subject has rendered such a book, reflecting the more recent discoveries, a necessity to physicians and students of medicine.

MICROBES AND MAGISTRATES.

A New York City magistrate has had a railing put in front of his desk so as to keep the prisoners at a safe distance during their examination. He considers, quite rightly, that in coughing and sneezing these unfortunates are bound to emit many dangerous germs. Nay, more, he complains bitterly that their breaths are wondrously variegated, of an extraordinary vigor and unendurably offensive. He is quite right in his objections, and no doubt all criminal courts will soon be equipped in the way he has required. And a good plan would be to make the length of the imprisonment commensurate with the strenuousness of the prisoner's breath.

THE CITY'S BLIND.

On a day early in September the blind of New York City received their annual pension from the municipal treasury, which this year amounted to $47 for each one of 667 people. For this purpose the streets leading to the Charities Department began at six in the morning to be lined with blind men and women, most of whom had escorts; a few were guided by pet dogs. They were kept in line by policemen, who took excellent care of them and aided them on their way for some blocks after the money had been paid, in order to guard them against thieves. They were profuse in their thanks and in their blessings on the paymaster. Many received their money with tears streaming down their cheeks.

RETROSPECTIVE THERAPEUTICS

Chronic Constipation.—Primary, functional, habitual constipation, according to Strassburger and other investigators, is due to diminished motility of the intestinal wall, but this is, in its turn, due, not to any abnormality in the innervation of the intestinal wall, but to the overutilization of the ingested food in the small intestine. The feces in the large intestine are poor in nutriment, and cannot support bacteria enough to produce the acids and gases of decomposition which normally excite peristalsis. It follows that a rational therapy should be directed, not to strengthening the motor parietes of the intestine, but to the increase of the indigestible substances in the diet, in order to provide nutritive material for the intestinal bacteria.

Chloroform and Oxygen Anesthesia.—At a recent meeting of the Paris Academy of Medicine, M. Kirmisson (*Lancet*, April 16, 1904), gave an account of his experience in the use of chloroform mixed with oxygen as an anesthetic, being a revival of a method which had been formerly tried by Paul Bert upon some patients under the care of Pean. M. Kirmisson uses Rode's apparatus and gives a mixture of vaporized chloroform and oxygen in the proportion of from two to three grams of the former with from three to four liters of the latter. M. Kirmisson's experience of the method comprises 229 cases of anesthesia in children aged from six months to fifteen years. No untoward effects were observed. The anesthetic sleep is perhaps rather longer in coming on than with chloroform alone, but on the other hand the period of excitement is absent and vomiting is very rare. By this method M. Kirmisson has kept a patient anesthetized during an operation lasting fifty-two minutes with only 16 grams of chloroform. He considers that the method will find its principal application in abdominal surgery and in gynecology, where operations are likely to be prolonged. The use of oxygen causes a slight increase in the expense of administration compared with that of chloroform alone, but this is compensated by the saving in the amount of chloroform used.

Radium in Therapeutics.—In a lecture on Radium in Therapeutics, delivered before the William Pierson Medical Library Association of Orange, N. J., Dr. Robert Abbe of New York expressed the opinion that this agent does not act as quickly and satisfactorily as the Roentgen Ray. Experiments made by others and himself indicated, he said, that radium is of especial value in removing birthmarks. Most of the reports in the press in regard to the wonderful cures effected by it were exaggerated. Especially was this true as regards cases of blindness; but, at the same time, it was of great service in demonstrating to the surgeon whether or not the optic nerve is destroyed or whether an opacity of the pupil exists.

Some of Prof. Curie's more recent experiments with radium have dealt with its presence in mineral waters. To an English interviewer the scientist said: "My experiments leave no room for doubt. There are certainly radio-active principles in these waters. But as I am not a doctor, it would be rash of me to say they have a curative virtue. However, in view of the facts we have to go upon, it seems highly probable that they have. It is a very old medical opinion that the waters of certain famous springs must be taken on the spot or their curative virtues are lessened. Analysis is unable to give any explanation of the potent virtues of Carlsbad and other famous waters. This discovery of radium in several springs offers a new and most interesting explanation of the hitherto mysterious and curative activity which vanishes when they have been sometime bottled." Curie and Laborde found that after bottling samples of the radio-active springs their radio-activity fell by a half in four days, and eventually vanished altogether.

Removal of the Large Intestine.—Metchnikoff, whose belief in the possibility of preventing the inroads of old age by means of specific serums, has already been referred to in the TIMES, has further promulgated the idea that the large intestine is an unnecessary part of the economy, and can well be dispensed with, as a cesspool which is a constant menace to the economy, a useless legacy from our remote ancestors. The *British Medical Journal* of June 25 reviews his book recently published on "The Prevention of Old Age," and adds that his suggestion in regard to dispensing with the intestinal cesspool has already been acted on by W. Arbuthnot Lane for the cure of obstinate constipation in two severe cases, uniting the ileum with the rectum or sigmoid. He asserts that the principle involved in cutting off from the intestinal tract almost the entire length of the large bowel, which in a certain class of persons is much more dangerous than useful, will have a very extensive application in future in surgical practice. His communication was published in the *Lancet* of January 2, 1904.

Does Gonorrhea Cause Prostatic Hypertrophy?—This question is discussed by Edward L. Keyes, Jr., in *Jour. A. M. A.*, June 16, 1904. He concludes as follows:

1. Among 433 cases suffering from prostatic hypertrophy, only 18 show clinical evidence of previous prostatitis.

2. These 18 present no marked difference in point of size of the prostate, or of beginning of the disease to differentiate them from the remaining 415.

3. Comparison of these 18 cases with 54 cases of chronic prostatitis without hypertrophy shows that the proportion of such cases suffering from prostatic hypertrophy varies little from the normal.

4. Prostatitis lasting more than ten years probably tends to produce prostatic atrophy rather than prostatic hypertrophy.

5. Therefore, if it is true that hypertrophy of the prostate is pathologically referable to inflammation, the clinical data suggest that this inflammation is either early gonorrhea of relatively brief duration or some obscure sclerotic process associated with advancing years.

6. The late date at which prostatic hypertrophy begins and its infrequency compared with that of early gonorrhea, make it seem clinically most improbable that early gonorrhea is the cause.

Importance of the Tongue in Diagnosis.—The old notion that the condition of the stomach lining is reflected in the mucosa of the tongue has been long exploded and even the débris have been scattered to the winds by a communication in the *Gaz. des Hopitaux* of September 17, 1903, in which Mathieu and Roux discourse on the diagnostic value of the states of the tongue in affections of the digestive tract. They establish that the mucous membrane of the tongue is mucosa folds. It is not formed from the inner layer, but from the outer layer of the blastoderm. In structure it resembles the skin. The "coated tongue" is not due to an actual coating, but is, in effect, a grass plot of

long and thick filiform papillæ, and the white color is due to a superficial desquamative dermitis. This dermitis arises and subsides under the influence of external and internal intoxications, like any cutaneous affection, with the important difference that the tongue is much more intensely sensitive than the skin, owing to its wealth of nerves and vessels. This lingual dermitis is, therefore, an extremely early and important sign of internal derangement, and thus the tongue retains all its old diagnostic value. The only difference is that the knowledge that this dermitis may persist after the cause has subsided should suggest that we must not wait for the tongue to clear before instituting nourishing feeding.

Diet of the Japanese.—It is stated that the wonderful physical strength and endurance of the Japanese, as shown by their remarkable exploits in both war and peace, are attributed by themselves to their simple, non-flesh dietary. We quote the following from the London *Lancet:* "In 1899 a commission was appointed to consider whether by a meat diet or by any other means the stature of the race could be raised; but the conclusion arrived at was that seeing that their feats of strength and enduring power were superior to races much taller than themselves, the lowness of their stature did not matter. Although during the period of their ascendancy the Samurai kept the secret that their great physical superiority was due in a large measure to the internal and external use of water, the belief that if used liberally and intelligently, water is an infallible weapon against disease, is now generally held. By those who go in for *jiu-jitsu,* an average of one gallon a day is drunk. All that is really required by the people is that the water shall be pure. By the copious ingestion of water the action of the bowels and kidneys is stimulated, and it is noteworthy that rheumatism is almost unknown in Japan; it is probable that the absence of meat from the diet, combined with the use of plenty of water, accounts for this immunity. . . .

"Vegetables and fruit are grown in abundance, and their value as a regular part of the diet is realized far more than in this country. Indeed, a laborer is content to work a whole day on a dinner of tomatoes, cucumbers and salad. Salad is eaten cooked, as a cure for sleeplessness. Milk is scarce because it does not pay to keep cattle to produce milk alone, and the meat is not eaten. Tea poured out almost immediately after it is made, is taken wthout milk. Beer is drunk to some extent, but not in large quantities, and though spirits are imported, they are little cared for. Tobacco is very moderately used.

"The diet of the Japanese is chiefly farinaceous, consisting largely of rice, with the addition of beans, and a little fat of some sort. The fact that within a single generation the Japanese have made more progress in civilization than any other nation has made in two hundred years, very clearly shows that notwithstanding their diet practically excludes flesh foods, they are in no way inferior in intrinsic intellectual power to the people of other countries in which flesh food is largely used."

The Diet in Diseases of the Liver.—Linnosier (*Bull. et Mem. de la Société de Therapeutique,* 1904, February 24) says in treatment of liver disease it is necessary to exercise care as regards not only the quality but also the quantity of food to a considerable degree. Meats are to be more or less completely excluded, depending on the gravity of the disease. Lean ham and fresh fish are the most suitable meats; milk is an excellent article of diet. There is commonly fear of the fat in ordinary milk, but it is not necessary in all cases to use skimmed milk, as this very fat on account of its complete emulsifying property is in many cases well tolerated. Fresh vegetables—peas, beans, salads, etc.—are commendable in cases where digestion is as good as normal, but turnips, cabbage, etc., are not to be permitted. Bread and dishes prepared from flour may be given to a limited extent; foods, however, the ash of which is rich in phosphoric acid, are to be forbidden, as they increase the already existing acid intoxication. Potatoes, the ash of which is alkaline, are not noxious. Ripe fruits, rich in sugars, are suitable, on account of their laxative powers and their vegetable acid salts. The latter are changed to carbonates in the organism, and therefore have a favorable influence on the existing hyperacidity. The best drink is water, and especially light mineral waters. Where there is excessive acid formation, alkaline mineral waters give excellent service. Small quantities of coffee may be permitted, but chocolate, on account of being rich in fats and oxalic acid, is to be prohibited.

The Dietetic Treatment of Diabetes.—Robert Hutchinson (*Practitioner,* June, 1904; *Am. Med.*) means by the term diabetes a permanent glycosuria, however caused. Cases can be separated into two groups, in which diet must be administered along different lines: (1) Mild cases in which some tolerance of carbohydrates still exist; (2) Severe cases in which there is no tolerance of carbohydrates. In the first group, if a patient begins to excrete sugar when he is allowed four ounces of bread he should be given half that amount, and at least twice a year be subjected to a period of perfectly strict diet to give the carbohydrate assimilating functions a complete rest. If, in severe cases, a test-diet shows that the patient excretes more carbohydrate than he takes in, dieting must be instituted cautiously. The urine should be examined for oxbutyric acid and its allies by the "perchlorid of iron" test; if this be positive, the patient is always in danger of coma, which apparently may be precipitated by a sudden change in dietetic habits. The carbohydrates should be reduced very slowly and sodium bicarbonate administered at the same time. If the perchlorid reaction be negative, strict diet may be instituted suddenly or gradually, though the latter is to be preferred. Hutchinson gives in detail the constituents of a strict diet. Fat is to be given in as large quantities as possible. There is a widespread fallacy that toast may be taken instead of bread; weight for weight, it is more rather than less harmful. There is too great a tendency to banish the potato from diabetic diet. Some form of alcoholic beverage should be taken daily. If coma is imminent, strict diet must be abandoned; skim milk is then best.

Dr. Temoin, in a paper on the subject of preserving chloroform, said that he had for several years used a very simple method by which chloroform may be kept for an indefinite time without decomposition. This method, which was devised by M. Allain, a military apothecary, consists in the addition of a little flour of sulphur—four grams to the kilogram of chloroform. Using this method, Dr. Temoin has given chloroform 6,000 times without the slightest mishap, and he has presented the Academy with a bottle of chloroform prepared in 1896 which he believes to be in excellent condition.

DR. OSLER TO GO TO OXFORD.

Dr. Osler has accepted the place of regius professor of medicine at the University of Oxford, England. He will make his home in Oxford and will begin his work next spring. King Edward has approved his appointment. He is to succeed Sir John Burdon-Sanderson.

Dr. Osler has been professor of medicine and physician to the hospital of the Johns Hopkins Medical School since 1889. A Canadian by birth, and one of a family of noted and able men, he was graduated from McGill University in 1872, after which he studied in London, Berlin and Paris. For ten years he was professor at McGill University, after which he was for five years professor of clinical medicine of the University of Pennsylvania. Since 1889 he has been teaching, writing and practicing in Baltimore. He but recently went to England to attend a meeting of the Oxford Medical Society, which body had previously honored both him and itself by giving him a degree.

Dr. Osler is certainly one of the foremost physicians of our time. He is a genius who has gone into the practice of medicine. His illustrious career is the logical outcome, not only of a laborious study of medicine and of many years of clinical work, but also of a many-sided culture and of broad humanitarian instincts. He demonstrates that a great physician must be a man to whose sympathies nothing that is of human interest can be alien.

THE INFECTIVITY OF PNEUMONIA.

Health Commissioner Darlington, of New York City, has been desirous of ascertaining the degree to which pneumonia is infectious, to the end that administrative measures preventative of that disease may be instituted. To this end $10,000 has been appropriated to defray the expenses of an investigating commission. The gentlemen who have consented to serve are: Dr. William Osler and Dr. William H. Welch, of Johns Hopkins; Dr. Edward G. Janeway, of New York University; Dr. J. Mitchell Prudden and Dr. L. Emmett Holt, of the College of Physicians and Surgeons; Dr. Frank Billings, of the Rush Medical College of Chicago; Dr. John H. Musser, of the University of Pennsylvania, and Dr. Theobald Smith, of Harvard.

DR. BARUCH AND THE GREAT UNWASHED.

"Cleanliness is next to godliness," said John Wesley. If this be true, Dr. Baruch has certainly earned the right to companionship with the founder of Methodism in efforts making for the regeneration of mankind. As far back as 1889, Dr. Baruch began the crusade for public spray baths, and later, with the aid of a perfected organization of the entire medical profession of New York State, achieved his object—the establishment of numerous free public baths in this city. There is now certainly no excuse for personal uncleanliness. The untidiest denizen of the Fourth Ward may bathe more frequently than many an honest farmer's household. The substitution of the spray baths for the tub does away with the dangers of contagion in the older method, and the comparative rapidity of the shower under proper pressure makes it possible to bathe the multitude very rapidly and at very small cost to the city. In words such as the evangelist Wesley might have used, "Let the good work go on."

THE TANGELO.

The creation of a new fruit is announced by scientists in the employ of the Government under the auspices of the Department of Agriculture. The new fruit is a hybrid resulting from a cross between the tangerine orange and the pomelo or grape-fruit. The cross was made in 1897, but only this year have the seedlings borne fruit. The result is a new and delicious fruit, combining the characteristics of both parents, inheriting size, juiciness and refreshing flavor from the pomelo; from the tangerine a thin rind, a tender pulp, and an almost seedless interior. When extensively propagated, as it will be in a few years, the tangelo will be one of the most popular of citrous fruits in the market.

COLLEGE OF PHYSICIANS AND SURGEONS OF ONTARIO.

EXAMINATIONS IN MATERIA MEDICA AND PHARMACY.

1. In what physiological respects does Morphia differ from Opium? How much Morphiæ Sulph. is represented (approximately) by one grain of Opii. Pulv? Why is Atropine often administered with Morph. Sulph.? What circumstances modify the action of Opium?

2. Name five officinal preparations of Ferrum. Express names of them in Latin. Give adult doses. Compare Ferri Phosphas and Ferri et Ammonii Citras, as regards appearance, taste and solubility.

3. Express these prescriptions in Latin: Dried Carbonate of Sodium, 1½ drachms; Powdered Myrrh, 18 grains; Powdered Ipecacuanha, 3 grains. Mix. Divide in six powders, of which one is to be taken every fourth hour. Write an eight-ounce prescription to contain Hydrargyri Chloridum Corr., Potasii Iodidum, one Tincture, and one Elixir. Name adult dose, and full directions.

4. Give adult doses of, and indications for the employment of Zinci Sulphocarbolas, Salol, Sodii Salycylas, Potasii Permanganas, Antimonii et Potass. Tart., and Bismuthi Subnitras.

5. What are the standard units of the Metric system of Weights and Measures? Compare advantages of the Metric system with the common system. Give an illustration.

6. What is the name of the alkaloid of Physostigma Venenosum? State dose. Define Mydriatics and Myotics. Give two illustrations of each.

7. Name dose of the Tincture and of the Alkaloid, and therapeutical action of Digitalis, Aconite, Belladonna, Hyoscyamus, and Erythoxylon.

8. (*a*) Name source, parts used, and some of the most important actions or uses of Ipecacuanha, Rheum and Aloes Socotrina. (*b*) Give the source of Acidum Chrysophanicum, and Acidum Pyrogallicum.

9. Are the Alkalies and their Carbonates compatible with the Acids, and with Metallic Salts? Do the Alkalies assist each other's action? Do the Caustic Alkalies decompose the Alkaloids of Belladonna, Hyoscyamus, etc.?

10. Give the scientific names of any six of the following preparations: Turpeth Mineral, Hoffman's Anodyne, Fowler's Solution, Dover's Powder, Lugol's Solution, Tully's Powder, Gregory's Powder, Basham's Mixture, Vallet's Mass, Griffith's Mixture, and Donovan's Solution.

JAMES S. SPRAGUE, M.A., M.D.,
Examiner.

MISCELLANY

The Fourth Pan-American Medical Congress will meet in Panama the latter part of December.

The next meeting of the International Congress for the study of Tuberculosis will be held in Paris in October, 1905.

Three hundred physicians will be sent to Panama by the United States Government. Most of them will be taken from Eastern cities.

E. J. Marey, M.D., the inventor of the sphygmograph, and Professor of Natural History at the College de France, died at Paris, May 16, aged 74.

Investigations carried on at the Massachusetts Hospital for Inebriates and at the Long Island College Hospital have shown very definitely that alcoholism is of slight importance as a causative factor in tuberculosis.

In New Jersey the legal value of a boy and a girl has been fixed at $6,000 and $3,000 respectively, upon the hypothesis that the value of a girl's life from a wage-earning standpoint is about half that of a boy's.

In the London Lancet Dr. R. A. Lucas describes three cases in which cancer was apparently caused by the friction of the pectoralis major on the edge of the corset. Each case occurred on the right side in a woman whose occupation caused much use of the right arm.

The Reception Hospital has been incorporated to maintain a hospital in South Elba, Saranac Lake Village, which is intended to relieve a class of sufferers who are turned away everywhere else because their cases are too far advanced. Drs. E. L. Trudeau and Edward R. Baldwin are on the board of managers.

If another physician's name is mentioned in your presence, bite your tongue and compress your lips, and the patient will understand that your hypertrophied good principle keeps you from telling "the truth, the whole truth," and a few other things about him. This is the *Medical World's* advice, not ours.

Dr. J. Neely Rhodes states that he has removed with success powder stains from the face due to firecrackers, etc., by means of the application of hydrogen peroxide. He applied it in full strength, and gave it to the patient to apply at home. In two days the patient called at his office with the powder stains all removed.

The North American thistle, cnicus discolor, has on the inner surface of the scales of its involucre a large gland which secretes a viscous fluid, of which certain insects are very fond. Many insects are held captive, their legs fastened in the viscous fluid. Once eight beetles were found at the base of the head of one of these thistles. The insects captured do not nourish the plant, therefore the use of the glands is unexplained.

The Post-Office Department is causing an analysis of some of the widely advertised patent medicines to be made, and when it is discovered that the medicines are rank frauds, the advertising matter will no longer be allowed the use of the United States mails. The move is the outgrowth of a series of investigations which have been made by the Bureau of Chemistry of the Department of Agriculture.

There is no telling to what length an irresistible desire may carry a person, says the *N. Y. Med. Journal*. At a recent meeting of the Sociêté Francaise o'Obstetrique, de Gynecologie et de Pediatrie (*Medécine Orientale*, April 10) M. Reverdin, of Geneva, reported the case of a woman who, immediately after her confinement, called imperatively to see the placenta, and then bit it, acting as she afterward said, under an irresistible impulse.

A Method of Extracting Alcohol from fecal matter has just been made public by the inventor, says the *Reuve Médicale de Normandie*. He claims that by his process 80 grams can be obtained from a kilogram of feces. It is estimated that a city of 100,000 inhabitants will supply excrement enough to yield 4,500 hektolitres of alcohol, to say nothing of obtaining by distillation nearly two million cubic metres of combustible gas!

With Practice (says .the *International Journal of Surgery*) any one can easily learn to pass a female catheter without uncovering the patient, but it is very rarely advisable to adopt this mode of action, for the simple reason that it is not clean. Expose the patient, wipe the parts with a disinfecting solution, and insert the sterilized catheter without letting it come in contact with any part of the pudenda other than the urethral opening.

According to a notice on the bulletin board of the Berlin University the Emperor of Korea wishes to appoint a German dentist at his capital for a period of two years, the conditions being as follows: A monthly salary of 300 yen, or approximately $150; an allowance for rent of $15; traveling expenses each way, $500; for instruments, $2,000; for the laboratory, $15; one hour per week duty in the palace; privilege for private practice, and two months' vacation privilege per year. A good knowledge of English or French is also required.

The New York Medical Journal is of opinion that a casual consideration of the theory of ions in chemistry, essentially electrical in its nature, shows that science in the future will demand on the part of the medical student a knowledge of the higher mathematics. The old "algebra, as far as quadratic equations," will no longer serve his needs and he must learn the theory of infinitesimals, a genuine knowledge of which requires a rather high quality of mind. Evolution, the editor thinks, will eventually dispose of the question of the overcrowding of the medical profession.

In Budapest there died a few days ago Dr. Adolf Schermann, to whose laborious efforts are due the improved sanitary condition and the decrease in the death-rate of the Hungarian capital. Schermann considered it essential that the cardinal rules of hygiene should be thoroughly impregnated in the mind of the public, and suggested an unique method of attaining this end. All these regulations can be versified in such a form that they will readily become impressed on the ear and mind, and may then be taught to the school children. The suggestion will soon be adopted in Hungary and will no doubt meet with success.

Dr. Gartner, of Vienna, has invented an apparatus, called a "pulse register," intended to watch and register the action of the heart and pulse while the patient is under the influence of chloroform, ether, or cocain. The apparatus consists of a watch-like box, to be attached to the patient's forearm. The box has a graduated dial and hands, working according to pulse and blood-pressure vibrations, which are registered by an elastic spring in the most precise manner imaginable. The physician in attendance, or operator is all the time kept informed of the exact degree of the unconscious person's pulse and heart action. The controller furthermore shows the action of pulses which the physician's finger cannot feel or find. Dr. Gartner said he hoped patients and physicians alike would be benefited by his invention.

ILLUSTRATIVE CASES DUE TO EYE-STRAIN WITH EXPLANATORY REMARKS CONCERNING THEM.

BY AMBROSE L. RANNEY, A.M., M.D., OF NEW YORK CITY.

PART I.

THERE is no field in curative medicine to-day that is more productive of immediate benefits than the detection and scientific correction of eye-strain.

Indisputable proof is offered daily to the medical profession that many physical conditions, which have heretofore baffled medical skill, owe their existence solely to a leakage of nerve-force from eye-strain.

Such ills can only be permanently cured by a complete cessation of the cause.

Radical cures of epilepsy, insanity, St. Vitus' dance, sleeplessness, diabetes, chronic digestive disturbances, headache and neuralgias of the most severe forms, and many other types of physical ills that seemed to have no apparent relationship to eye-strain, have been repeatedly effected within the past decade solely through intelligent eye-treatment in the hands of men who have mastered the intricacies of solving complex eye-problems by modern instruments and modern methods.

The medical journals are replete to-day with reported cases that confirm these positive statements.

A *new era in the treatment of many obscure and persistent nervous derangements began when this great discovery in curative medicine was first promulgated.*

Even the term "EYE-STRAIN"—originally coined by me, and employed in my earlier writings as far back as 1879—is now used by oculists and neurologists quite universally in both the text and head-captions of their contributions to this important field in curative medicine both in journals and text-books.

I refer here to this general adoption of a term (that seems to have been happily coined by me) because it is an evidence of a growing interest in the field and the tacit acceptance to-day by progressive oculists and neurologists of the view that abnormalities of the eyes and mal-adjustments of the eye-muscles can no longer be ignored as an extremely common cause of nervous derangements.

All the leading text-books on eye-diseases and nervous-diseases that have appeared within the past ten years contain more or less matter relating to this important field of inquiry. Several complete works have also been written within a decade upon the many conditions that are apt to produce eye-strain. In some of these, a large number of startling recoveries (through the relief of eye-strain) have been recorded.

The ten illustrative cases which I publish here (with their clinical histories) are worthy of a most careful perusal. Some have been previously reported elsewhere, before the permanency of the cure was less positively established than it is to-day.

CASES I., III., V. and VI., were extreme instances of *nervous prostration* with *very marked mental derangements.*

In two of these sufferers, *softening of the brain* had been diagnosed by the attending physicians and consultants.

One had reached the deplorable state where he was incapable of dressing himself or even of telling properly how the garments were worn; he would not even swallow food until told to do so; and he had been for two years under the care of attendants.

One had very pronounced melancholia in addition to being a house-confined invalid for many years until eye-strain was discovered as the exciting cause of her physical and mental collapse.

CASES II. and III. illustrate the *relationship between eye-strain and uncontrollable pain.*

One of these patients suffered for many years with constant and intense headache that yielded to no medication.

The other was known throughout the section of country in which her home was located as the "screaming girl."

Her shrieks during the neuralgic paroxysms could be heard for long distances.

CASES VII. and VIII. show in a most remarkable way that eye-strain can produce *most extreme and progressive deformities of the body,* by creating a condition of chronic reflex spasm in localized groups of muscles.

One of these sufferers went day and night for many months with a pillow crowded between her twisted head and the shoulder of the affected side. A more pitiable case has seldom been observed.

The other sufferer in this group had been exhibited before medical societies throughout a State in New England prior to the detection of eye-strain, in the vain hope of some suggestion for the relief of the progressing deformity of her head, neck, arms and hands.

A diagnosis of organic disease of the spinal cord had repeatedly been made by different medical consultants.

CASES IX. and X. show that eye-strain can produce *an inability to walk;* and make some of its victims bed-ridden invalids for years.

One of these sufferers (a young girl of 21 years) was carried from the depot to my office, and had not been outside of her home, except in a carriage, for nearly six years.

She subsequently became a *teacher of physical culture;* after the complete arrest of eye-strain by me, through graduated tenotomies.

The other patient had naturally attributed her inability to walk and her sudden physical collapse to an accident that had immediately preceded the development of her illness; yet for two years no improvement took place under intelligent medical care until the discovery and total arrest of eye-strain rapidly effected a permanent cure.

In a previous contribution to this journal (June, 1904), I have reported several other cases that demonstrated also the relationship of eye-strain to epilepsy, and to St. Vitus' dance. To these, and many other similar cases in my book,* I would respectfully refer my readers.

Modern Methods of Examination and Modern Instruments for the Detection of Eye-Strain are Indispensable To-day.

Every one who has worked intelligently and faithfully for years in the scientific study of the eye-muscles knows to-day that no opinion regarding their anomalies can be of value—no matter how great the reputation of the man—if he has neither the "phorometer" nor "tropometer" as a part of his office equipment, nor any records of the power of each individual muscle and the arcs-of-rotation of each eye upward, downward, inward and outward.

* "Eye-Strain in Health and Disease." F. A. Davis, Publisher, Phila.

There is indisputable proof to-day that a "crossed" eye toward the nose or temple—chiefly the former—may in some cases be made parallel with its *fellow by simply lowering or raising one or both eyes.* Such cases were not understood ten years ago.

They tend to-day to explain why many operations for "squint" have, in the past, caused bad over-corrections or yielded negative results. It is known to-day that the muscle at fault in "cross-eye" is not always the muscle that to the casual observer appears to restrict the natural movements of the eye.

The cutting of the wrong muscle may sometimes give the operator (who has followed *antiquated methods* of research before operation)—and the patient as well—subsequent food for reflection and a vast amount of regret.

The sad results, viewed from the standpoint of suffering humanity, that are entailed by indifference and prejudice in men of scientific reputation cannot be estimated.

By giving expression to others of their opinion concerning what they have not properly and patiently investigated themselves or will not see, thousands of sufferers are doomed to a life of misery.

Such sufferers naturally believe that abnormal eye factors in their own case have been sought for by the *latest methods* and found to be absent by one who stands high in his profession. They naturally quote to their friends and physicians the positive assertions of some oculist *whom they believe to be infallible*—that "eye muscles are not worth investigating;" that "all deviating tendencies of the eyes are invariably due to errors of refraction;" that "Javal's instrument has been used, and that instrument settles the question forever;" and other similar expressions, indicative either of inexperience, bigotry, or prejudice, that too often come to my own ears.

From a previous contribution of mine to the literature of this subject, I quote the following paragraph:

"'None are so blind as those who won't see!' There are many in the medical profession, to-day as in the past, who stick to antiquated methods; who, unfortunately, regard all innovations as either nonsensical or useless; who scoff at all facts which conflict with their pet theories and methods; who refuse to even try what they have groundless prejudices against; who talk learnedly in societies and elsewhere about the results of investigations by themselves or others that can never have been made intelligently, if at all; and who write as fluently as they talk derogatory to an important field in medicine that they have little if any technical knowledge of, no sympathy with, no experience in, and whose results (in such hands) must of necessity have been unsatisfactory."

Eye-Strain is a Cause of a Constant Leakage of Nerve Force.

It is for the purpose of demonstrating *that "eye-strain" may directly be the cause of obscure disease and not its result,* and of turning, if possible, the channel of medical thought so as to benefit suffering humanity, that I deem it wise to raise my voice again in defence of a method of treatment that will often accomplish what drugs will not, and that is based upon science rather than therapeutical speculation and empiricism.

The cases which I present to the reader in this connection are of special interest to the general practitioner of medicine because many forms of drugs had been employed by physicians of repute upon these sufferers (prior to my treatment of their eyes) without any appreciable benefit of a permanent character.

I am therefore justified, I think, in claiming that simply *by the arrest of a leakage of nerve-force* (which had been entailed upon these patients by errors of focus and certain anomalies of adjustment of the eyes) I gave Nature for the first time a chance to reassert herself in these patients, and I thus restored indirectly the condition of perfect health.

To any one who delves in the medical literature of the past, and who reads the theories that have flourished and been forgotten, it becomes at once apparent that the tendency of this age is to *seek for the causes of disease,* and, as far as possible, to remove them.

The argument that is advanced here is no longer a theory. It is supported by well-established physical laws and sustained by physiology. Furthermore, the results obtained when the abnormal eye factors have been scientifically determined and removed, can be shown to be almost instantaneous, and somewhat startling, in many of the cases thus treated.

A Predisposition to Obscure Diseases may be Caused by Eye-Strain.

From my late work, entitled, "Eye-Strain in Health and Disease," (F. A. Davis Co., Publishers, Phila.), I quote the following paragraphs relative to the effect of a leakage of nerve-force upon the predisposition of certain persons to obscure diseases:

"We are all exposed—from birth until death—to the presence of certain atmospheric germs or microbes. Many forms of these are constantly being introduced into our bodies through the air, our food, and the water we drink. Constantly, through life, certain toxic materials are also being formed within the human body and eliminated through the kidney, liver, intestinal tract, etc.

"In some subjects, when the most favorable conditions for their retention, absorption, and multiplication exist, do these microbes and toxic substances hasten the dissolution of life; while in others, that possess a reactive power capable of combating the elements of disease, life goes on in spite of microbes with its normal growth and decay.

"We are forced to admit that seeds sown by the farmer, as well as those of the weed carried and distributed by the wind, flourish best in soil that is properly prepared for their reception and development. Is it therefore irrational to assert that any of the underlying causes of nervous debility, any constant sources of excessive and unnatural nervous expenditure, any hereditary condition that creates an uninterrupted leakage of nerve-force, may be an important factor in fitting the human soil for the seeds of disease that are ever present and ready to take root?

"Should investigation end whenever microbes or toxic materials are discovered in the human economy? Should the causes of a diseased condition be regarded as determined so long as the underlying factors that enable this cause to exist and flourish are ignored? Which is the most important in medicine—to ascertain what adventitious agent can do damage under favorable conditions, or to so improve the nervous power of a patient as to enable the body to resist the seeds of disease?

"So long as we are incapable of fighting our foe (when once established with a firm foothold within

the human economy), what have we gained from the standpoint of the sufferer by simply knowing the name, exact appearance, or seat of the enemy?

"I would not be construed as decrying the scientific results obtained by careful, painstaking bacteriological or pathological research. They undoubtedly tend to furnish the medical practitioner with some knowledge, after the chaff has been eliminated and the wheat carefully collected, that may in time aid in the prevention of disease, and possibly facilitate its cure. But, while these investigations are going on, while with great rapidity theories are being hatched and exploded, while the views of to-day may not be those of to-morrow, is it not the duty of every earnest practitioner of medicine to listen with attention to clinical facts that are capable of absolute verification, that are often fraught with immediate results to suffering humanity, and that open a wide field for the treatment and relief of obscure nervous diseases?"

Groundless Opposition to Modern Methods of Eye-Examinations in the Past.

When, in November, 1902, I published quite a lengthy article on this field in the *N. Y. Medical Journal* (with some startling histories of recovery from apparently hopeless conditions after the scientific detection and relief of eye-strain), I reviewed some of the interesting events of the past to show how slowly medical thought is turned into new channels, and how much groundless opposition must always be encountered whenever any great discovery in medical science is promulgated.

Some paragraphs from this contribution will bear repetition here, in presenting my argument to a new set of readers. I say:

"An incensed but witty Irishman, when criticised for kicking a dead dog in the street, remarked that he proposed to teach that particular animal that there was punishment after death. Those who have long had to fight professional prejudice and bigotry, in their efforts to firmly establish new medical facts and scientific theories (when strongly antagonistic to routine practice) sometimes begin to doubt if even death will bring to them relief from unjust criticism, misconstruction, and abuse.

"When from 1880 to 1883, I made my early combats for the *'eye treatment' of headache* before the New York Academy of Medicine and the Neurological Society; when I told before those audiences a simple tale of my personal restoration to perfect health (from an apparently hopeless state of physical collapse) because of the use of glasses alone; when I made the statement that three of the leading oculists of America had utterly failed to detect with an ophthalmoscope even a fraction of the marked refractive error in my own eyes, that the use of atropine subsequently revealed; when I narrated in detail the magical relief that I had experienced through the use of glasses—not only of pain, but also of periodical attacks of vomiting that had persisted for over twenty years; when I stated that I believed from subsequent tests on others that *at least ninety per cent. of all typical cases of sick headache, if unassociated with organic disease, owed their attacks to some eye defect;* I encountered among other replies a satirical and somewhat vituperative attack from the leading neurologist of that period. The same neurologist, however, wrote (within a year from that date) an article on the eye factor in headache, which was even more rabid (from the standpoint of his former confrères) than was my original debate. He, too, had then acquired the termerity to state that headaches were, in his opinion, chiefly due to ocular causes; and to-day almost every text-book on nervous diseases gives more or less prominent support to this view in spite of the fact that it was deemed heretical two decades ago.

"This period of transition has been an interesting one. The medical profession has learned, for one thing, that the oculist should also be a neurologist (not an aurist, as in the past); and that the treatment of the ear should come (as it now does) within the province of the throat expert. He can treat it more intelligently than an eye expert because the ear is in no way related physiologically to the eye.

"'Eye-strain' and 'eye-reflexes' have become generally recognized to-day by neurologists as well as oculists of note, as very important factors in some puzzling cases that may closely simulate organic nervous diseases without being so; and the view is gaining ground that such cases can be often cured by a properly directed eye treatment alone, without recourse to drugs, galvanism, massage, hydrotherapy, or other recognized lines of treatment for nervous maladies.

"It no longer causes me surprise to see certain modern instruments (*designed to investigate and record anomalies of the eye muscles*) standing in the testing rooms of eye hospitals alongside of a trial set of lenses.

"I can well remember the time, however, when the use of such instruments (either in a hospital itself or in the private offices of the staff) would have put the owners in danger of dismissal—because the chiefs of the various clinics would not even tolerate or countenance their use. I can recall the time when an assistant surgeon of an eye hospital in New York consulted me about his eyes and was advised to have a graduated tenotomy performed upon an eye muscle as a step toward the cure of a nervous malady. He refused—simply because he feared a dismissal if it became known; and he asked of me a prescription for prismatic glasses (which were then seldom ordered) because, as he said, 'They would never be recognized by his colleagues.'

"I recall the time when the best opticians would send a messenger hurriedly to my office *whenever I ordered a vertical prism*, to see if the prescription had not been improperly written by me.

"When graduated tenotomies upon the eye-muscles were first performed, by means of very delicate scissors through a pinhole opening in the conjunctiva (in order to avoid the extreme wound and the scar on the eyeball that were sure to follow a free dissection so commonly practised in that time), an oculist of international reputation openly charged 'fraud' because of the absence of the customary scar. He stated publicly that 'simply scratching the conjuntiva did not constitute an operative procedure'; and, in many other ways he and others endeavored to create distrust in the truthfulness of certain published records that demonstrated the beneficial effects of such operations."

The Importance of a Scientific Correction of Eye-Strain in Youth.

Less than two years ago (April, 1903), I published in the *Medical Record* an article entitled "Eye-Strain in Youth and its Modern Treatment." It was an earnest

plea for more careful investigation of the eyes of children by physicians and parents before education was actually begun and their school duties made obligatory.

Partly through my personal efforts and arguments, the legislature of an adjacent State has lately passed a bill which makes compulsory the examination of the eyes of all applicants for instruction in the public schools of that State.

I hope to see such a bill passed sooner or later in every State of the Union. It is as important to the general health as is legislative enactment relating to vaccination.

Many of the local boards of education in towns and villages are to-day giving to their teachers the benefits of semi-popular lectures relating to the serious effects of eye-strain upon the nervous system and the general health.

Some local boards have already gone farther than this! They are compelling teachers to make somewhat crude tests for vision upon their pupils. In case serious defects of vision are found in either eye, the parents are officially notified that the "eyes of their child seem to be defective"; with the unsolicited advice that some competent oculist be consulted in regard to the correction of the apparent visual perplexities of their child.

This is unquestionably a move in the right direction!

It prevents a child having one very defective eye from straining the best eye. It prevents a near-sighted child from being put on the rear row of seats in the school-room (where the blackboard work cannot be clearly seen) and the far-sighted child from being placed on the front row (where the eye-strain to this pupil is the greatest). It enables the teacher to detect high grades of astigmatism early in life, which might otherwise go undetected for years, and lead to many types of physical suffering. It makes the teacher an intelligent guardian over physical conditions that might in time seriously interfere with the proper development both of mind and body, and of which parents are too commonly ignorant.

Had I personally lived (as a child) in the age of present enlightenment, I would have been spared weekly attacks of pain that frequently made suicide attractive to me, and robbed me of an ability to fill my engagements for nearly ten years (in the aggregate) out of thirty; that made me prematurely gray; and that in the end brought me to a condition of despair, without evidence of any organic disease to account for my collapse.

Three of the leading oculists of my own city had been asked by me to examine my eyes within one week. They had all used only the ophthalmoscope and test-cards. They had all differed widely in their diagnosis; yet not one had discovered a latent refractive error that existed, and had even suggested to me the wearing of glasses.

Importance of the Atropine Test.

The use of atropine in my own eyes (instilled by myself when in despair and desirous of ascertaining positively which of three diagnoses was correct) revealed happily to me, some twenty-five years ago, a refractive error of very high degree that had escaped detection by means of the ophthalmoscope in these three different examinations.

One of these examinations of my eyes was made by the author of a large work upon ophthalmoscopy; yet even he closed his report by saying "that he could not find anything wrong in my eyes."

Is it to be wondered at, therefore, that I early made a determined fight against the use of the ophthalmoscope for accurate determination of refractive errors? It is a very useful instrument for many purposes; but, so long as the patient has not lost control of his accommodation by the use of a mydriatic, the ophthalmoscope cannot be relied upon in any hands as an instrument of scientific precision when prescribing glasses.

Moreover, it is as unfortunate as it is true to-day that very careless and imperfect refractive work is constantly done by oculists of international repute.

The probable explanation of this statement, to my mind (and I see daily positive proof of the accuracy of my assertion), lies in the fact that many cases of physical suffering caused by those refractive conditions that rather enhance the acuteness of vision than impair it (especially in youth) are overlooked in the rush of office work and in public institutions because atropine is not generally employed. Again, it is extremely hard to "teach old dogs a new trick," and it is both easy and natural to find excuses for not doing what is theoretically right but of necessity a nuisance to the patient and a time consumer to the oculist.

Yet, on the other hand, sufferers from nervous diseases in consequence of eye-strain (like myself in the past) must continue to suffer until the cause is positively determined and scientifically corrected!

The Responsibility of the Oculist to the Patient.

To have only a careless examination; to have a light thrown into the pupil, and to be then told "to run along and stop thinking of eyes," gives no relief to sufferers from eye-strain, as a rule.

Hasty advice and careless methods have their sad aspects!

Those who consult an oculist of great distinction naturally expect, and have a right to expect all the information about their own eyes that the latest and most scientific methods can possibly reveal; and the diagnosis that they receive is generally regarded by the sufferer as final and positive. It is an inexcusable violation of good faith on the part of an oculist, as well as a gross injustice to the sufferer, to omit any step that may throw light on the diagnosis. It is a more serious matter still to such sufferers to be told that they may dismiss from the mind the question of existence of eye-strain as a cause of their symptoms; when the refraction of the eyes has not been determined under atropine, and when the eye-muscles have not been tested by modern instruments of precision.

I hold to-day, as a curiosity, a letter written by an oculist of international repute to the physician who sent a patient to him for examination, in which he states "that the patient has no eye defects and needs only constitutional treatment." Yet this patient, who had suffered excruciating pain for many years, had a most extreme mal-adjustment of the eye-muscles; she had suffered for years from double vision (at times) and most annoying confusion of letters on a printed page; and she made a complete recovery under my care, after the muscle error was radically corrected.

Such experiences certainly teach some valuable lessons—especially to those who have suffered.

Because a groundless prejudice still exists among some of the older oculists against all attempts to investigate or correct mal-adjustments of eye-muscles; because they refuse to accept conversion to methods which are generally employed to-day in spite of the

fact that they are not venerable on account of their antiquity; because they may not yet be keenly alive to the deleterious effects of eye-strain upon the general health; these are not justifiable excuses for utter neglect to state their position of non-conversion to their patrons or for failure to investigate thoroughly the cases intrusted to their care with proper instruments and by modern methods. Sufferers (and their medical advisers also) have at least the right to decide whether they wish the eye-muscle tested as well as the refraction of the eyes; have the right to know whether anomalies of adjustment of the eye-muscles have or have not been sought for carefully and intelligently; and are certainly entitled to an opinion from an oculist based upon all the facts and not upon a partial and imperfect set of tests.

The sad aspect to which I have referred is not because a patient has wasted a consultation fee; not because a cursory and imperfect examination has been given in return for that fee; not because any damage has occurred from this unjustifiable negligence; *but because an opinion has been given on insufficient data;* because that opinion is apt to be construed as a final one, on account of the reputation of him who gives the opinion; and because the sufferer (unlike myself in the past) may never again have the chance to learn how his symptoms can be relieved and what was the cause.

A Table of Ocular Terms.

The following table will explain to the general practitioner in medicine the meaning of certain terms that are used in connection with anomalies of refraction of the eyes and mal-adjustment of the eye-muscles.

1. Terms related to the focus of the eye (*refractive terms*):

HYPERMETROPIA (*far-sightedness*). A *shallow eye* (from the front to the back), causing an imperfect focus of objects.

MYOPIA (*near-sightedness*). An *elongated eye* (from the front to the back), causing an imperfect focus of objects.

ASTIGMATISM. An *irregularly-curved cornea* or *lens*, causing distortion of images on retina.

EMMETROPIA. A *perfectly constructed eye.*

2. Terms related to the muscles which move the eyes (*muscular terms*):

ESOPHORIA. A tendency of one or both eyes to deviate toward the nose.

ESOTROPIA. An actual turning of one or both eyes toward the nose (*convergent squint*).

EXOPHORIA. A tendency of one or both eyes to deviate toward the temple.

EXOTROPIA. An actual turning of one or both eyes outward (*divergent squint* or "wall-eye").

HYPERPHORIA. A tendency of one eye to rise above the level of its fellow.

HYPERTROPIA. An actual turning of one eye above its fellow (*vertical squint*).

ANAPHORIA. A tendency of *both eyes* to assume too high a plane.

KATAPHORIA. A tendency of *both eyes* to assume too low a plane.

HÉTEROPHORIA. Abnormal adjustment of the eye-muscles.

ORTHOPHORIA. Normal adjustment of the eye-muscles.

ADDUCTION. he power of the internal muscle of the eyeballs. *It varies in health between 25° and 60°.*

ADDUCTION. The power of the internal muscles of the eyeballs. *It should be 8° in health.*

SURSUMDUCTION. The power of the vertical muscles of the eyeballs. *The right and left should be alike.*

3. Various forms of glasses employed by oculists:

SPHERICAL. Ground upon a *convex or concave sphere.* Used to correct hypermetropia and myopia.

CYLINDRICAL. Ground upon a *convex or concave cylinder.* Used to correct astigmatism.

PRISMATIC. *Two plane surfaces of glass meeting at an angle.* The thick side is termed the base of the prism. Used to relieve mechanically errors of adjustment of the eye-muscles.

CLINICAL AND OTHER NOTES REGARDING EPILEPSY.

BY THOMAS HORACE EVANS, M.D.
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THE peculiar borderland manifestations of disease may be taken to indicate the evolutionary character of it, as with all other life processes, and in applying to disease as well, the principles of evolution, we shall take a long step forward. To the pathogenic element these principles have already partially been applied. But the patient, the person, is fairly well apt to be overlooked in the interest of the "case."

What main factors of evolution has Darwin announced? Two; *natural* and *sexual* selections. To these the author is convinced two additional factors must be added. The higher organism is nothing but the evolutionized cell. Consequently, the original four protoplasmic faculties—contractility, irritability, reproduction and metabolism—must be represented in and by four profound and diffuse organic reflexes, which, respectively, may be termed: *initiative, temperament, sexuality* and *nutrition.*[1] The latter two have already received recognition, and it is for the two former I ask acceptation. When evolution receives this completed idea of protoplasmic responsibility, the difficulties or obscurities of the theory, so far as the biologic series is concerned at least, will disappear. The four facultative or organic reflexes detailed have a *physiochemic* basis as determined by their natural elements.

There is also a *somatic* or body, and a *psychic* or mental reading of the terms of the organism. But these reflexes—initiative, temperament, sexuality and nutrition—not real in and for themselves, but standing for great organic relations, are to be taken as representative of essential and determinative life processes.

Epilepsy is a disorder of the initiative reflex, characterized by a modified control of the organism—altered states of consciousness, and motor discharges—vasomotor, musculomotor, psychomotor and ideomotor. What physiochemic changes underlie all of this remains to find out, since we do not as yet know the physiochemic expression of even normal organic reflexes. But, clinically, we discern that the patient's response to stimulus may be either normal, hypertonic or hypotonic—as his condition varies. When response is normal he is to be taken as in a transition state not other than a passage between the two neurotonic extremities.

In the hypertonic crisis, inco-ordination of purpose results from excessive or isolatory function. Life will not exist in extremes of temperature; thought will not remain coherent in extremes of psychomotor activity. But the irritation finds its vent in the subconscious or unintentional motor explosion, with discharges of a somatic,

a psychic, or a combined character that corresponds to physiochemic increased or altered activity. To understand the sort of relations involved, a knowledge of conscious values is necessary. What is ideation? It is the intellectual reproductive process; going on in the nervous centres, it represents that of which peripheral tissue is the reality; the continuity of thought is analogous to and dependent upon the continuity of tissue.

Initiative and temperament constitute the affective and the effective relations, namely, the upper or zoetic cycle, while sexuality and nutrition constitute the metabolic and the reproductive relations, that is, the lower or vegetative cycle.

To *effect* implies the property of being *affected;* similiarly the metabolic function is intrinsic, while the reproductive is extrinsic; yet in each case it is merely a change expressive of modes of physiologic motion. Psychicly, while intellectual nutrition brings about understanding—assimilation of consciousness—the reproductive aspect of the mind carries on the thought series —woven into the tissue of mind by the same principle of organization which involves the structual integrity of the individual. Ideation takes its objective origin in the bilateral form of the nervous centres. Consciousness is essentially peripheral and real. But the reflective consciousness is worked out by a reduplicative process of the nervous system, and by means of the interrelation of cerebral hemispheres the doubling of psychosensory impulses makes possible conscious perception as the self in reflective imagery. It is almost certain that a single moment of self-consciousness comes to the cell as it divides in karyorexis. The unity of tissue and body depends on a preservation of this ground of consciousness. With the invasion of parasites, micro-organisms, and pathogenic elements, these may develop a conflict of life cycles dangerous to the unity of the individual. From within, modified states of the organic reflexes may disturb the essential balance. In the nature of this balance lies the correct notion of epilepsy.

The organic reflex facultative cycle determines the peculiar character of the individual, *i.e.*, the basis or essential reality of his consciousness. The central nervous system is the mode of the reflective or self-conscious and personal control of the organism. Allow, then, some accident—some restriction of proper or usual centric correlation of consciousness therein, and the balance of reflective or self-conscious power is impaired or destroyed. If the medulla is severed, death follows. If, however, some vasomotor cramp[2] inhibits, intermittently, some essential communicative tract, the circuit of self-consciousness is opened and closed more or less rapidly; a psychomotor dizziness is the result; or, with a more or less complete closure, a restricted circuit may be established without the inhibitory or correlative effects of certain psychic centres. Not alone vasomotor cramp or clonic spasm might account for the change in the psychic field. Modified or difficult temporary nutrition of nerve tracts—chemic interchange, mechanical influences, etc., may be causal. The feature of importance, however, is the removal of certain psychoinhibitory relations, or the modifying of the territory of self, or reflective, consciousness, depriving the psychic chain of necessary factors of judgment or apperception, and the result is a hypertone of corresponding relief.

In the aftermath, the sudden resumption of inhibitory influence, added to the weariness of the overfunctioned cells, we find gives rise to a hypotonic state of essential consciousness, against which self-consciousness falls to a minimum. The causes of epilepsy are disorders of initiative due to essential outbursts of cellular activity, not necessarily in the field of self-conscious processes, although they ultimately will be involved. In some cases these outbursts may be brought about through vasomotor clonic or tonic spasm so as to cut off some psychic centres from others. In other cases toxins, or waste products, may interfere with the psychic correlation. Rheumatism, lithemia, syphilis, or trauma, may cause metabolic alterations, likewise.

These alterations may not always be in the line of permanent structural interference, but in a predisposing tendency to temporary or accidental physiochemic changes in the conduct of psychic association. Physiologic modes of motion are rhythmic, as all motion tends to swing between possible extremes; the disturbing factors may, in probability, be constant, but the reaction is cumulative and explosive. In Jacksonian Epilepsy the mechanical changes cause a continual irritation which finally wears out the cells, and they let go. Then comes the reaction of centres, and in the storm the hypertonic state of metabolism clears the sky. Nature gives us increased temperature to combat toxic forces. An increased psychic activity corrects incoherent or incorrelate psychic circuits; increased irritation means increased reaction to the extent of organic reserve, beyond which recovery fails. In this reaction the storm often involves remoter tissues. A general vasomotor spasm may be brought on through special or particular initiative disorders.

Borderland epilepsy may approach the manifestations of genius.[3] By a minute interference with the psychic circuit, certain inhibitory influences becoming reduced may tend to increase, apparently, intellectual power. The results of such effort will not equal the sustained work of genius, but for shorter or more scintillating effects may suffice. It is possible that in a series of such epileptic clarifications a considerable work might be accomplished.

The effect of these epileptic interferences, aside from the abnormal strain on the tissues involved in the creative work, will be disorganizative, and such individuals will decline in power with years, even becoming subject, in many cases, to progressive mental affections.

Observation 1.—Boy, O. F., age 12 years, suffering from petitmal, night terrors and gastric crises. No parental disease discoverable. Mother confined at 16 years. Boy began to show epileptic symptoms when 3 years old (the waking of self-consciousness). Was circumcised, and experienced great benefit for several years. Then the attacks returned and increased. Was backward in school and did not care to study. He is a delicate looking boy, although active and fond of outdoor life. His voice, as yet in boyish register, is high. Dark haired, rather brachycephalic, mandible delicate—not prognatous; ears projectile, eye-brows well marked. Osseous system light in development, but not delayed; teeth well formed. Extremities not heavy but well proportioned.

At age of 12, eyes were examined and discovered to be in great need of refraction. This was accomplished in May, 1904, since when no attacks of any epileptic character have been noted. The temperamental results, while not startling, are exceedingly satisfactory. Before, nervous and excitable, always "on the jump," now he presents a tranquil and self-contained appearance. He has not yet shown any increased desire for study, but takes a greater interest in reading.

What the reflex of eye-strain is, is a mooted point.[4] I take it that eye-strain, in some few cases, may be the effectual cause of epilepsy; as also phimosis, or any other source of essential irritation. The temperamental reflex suffers, and directly or indirectly, disorders of metabolism lead over into

initiative disturbances of a cumulative or rhythmic effect.

Eye-strain cases will not be benefitted by a refraction, if any additional disorder has had time to enter the equation, for then the strain has become organicly incorporated. Some cases of true eye-strain may do poorly for the following reasons: Rheumatic or other disease of the muscle of accommodation may interfere with the refraction test; the muscle of accommodation may not be able to exert a constant effect; different states of conductivity of the optic nerve may delay one visual image—or these different states of conductivity may vary from time to time. In epileptics we would look for just such neurotonic variations. The effect of this on the psychosensory, or cortical, areas will be important directly in proportion to the truth of the theory of bihemispheric ideational activity (vide supra).

Further, all of us are not fitted to enter the ocular competition of modern times, and the result is that some of us are sure to be thrown out of the contest, in the course of natural selection, with or without all possible aid of suitable lenses; epilepsy may be one of the determinative factors.

Observation 2.—Mrs. McC., aged 31 years; 3 children, 3 miscarriages. For two years has suffered various confusional epileptic outbursts, and on rare occasions, grand mal. She is a woman of catarrhal diathesis; dark haired, with pale complexion; voice in high register; rather dolichocephalic; largely developed skeleton. Eye-grounds impaired, ears subject to a chronic sclerosis of the tympanum, and stiffness of the muscles of the middle ear—possibly lithemic. Symptoms of uterine lithemia. Subject to headache, constipation and neurasthenia.

She does well when wearing dark glasses and undergoing general rest treatment. But with lenses of correct refraction, if allowed to use the eyes, begins again to have the epileptic seizures. At times there are attacks of the uncinate variety, of which Spiller (of Philadelphia) speaks, with symptoms of: the dream state, peculiar manifestations of objective qualities, variations of size, distance, color, etc. These have constituted true aura, in this case, warning her of the onset of confusional states and of unconsciousness. Bromid mixture has failed to do all it should.

I believe Bromid is of use in those cases only which may be due to violent expressions of motive force. The effect of continued administration of Bromid is to brutalize the patient.[3] Some cases seem to be accompanied by hemorrhage[6] in the dermal region, or vasomotor spasm,[7] possibly of origin so remote, even, as the ganglia of the suprarenal. In these cases symptomatic treatment, such as with ergot, or spt. glonoin, may be useful. Mrs. McC. is now on the latter; with good effects while compelled to wear shaded lenses.

Observation 3.—Results of Cocain usage.[8] Many physiochemic agencies producing motor storms, also in suitable dose bring on epileptic equivalent states. Cocain will stimulate epileptic dream states; similarly, without complete loss of self-consciousness. It is able to excite contractile or initiative consciousness as seen in muscles—vasomotor spasm, musculomotor spasm, and ideomotor involuntary processes analogous. It is possible that some individuals may be of a sort to lack the elements cocain supplies to metabolism, or they may acquire the temporary need of it. The disordered facultative reflexes will respond to stimulus in ways analogous to epileptic equivalents —attacks on inoffensive people, psychomotor storms, or temporary hallucinations, and more or less permanent intellectual disorganization. The peculiar sensory impressions under the effect of narcotics are due to disassociation of responsible nerve centres. Certain narcotic products, of a faulty metabolism, due to fatigue or motor irregularities, may be assumed as causative of epileptic states. The mutability of epileptic evidences is reason to assume that varying, or many, factors enter the equation.

Observation 4.—Sexual inversion and epilepsy. The effects on personality of castration in early life suggest that the sexual reflex determines the evolution of much of the body processes.

The writer does not believe in the centric control of development. R. G. Harrison has shown (in rana palustris) the power of muscle growth and function is not destroyed by section of the spinal cord and the segment which should communicate with the muscle in question. It seems, then, that contractile power is peripheral. Sexual function also is peripheral, and exerts its influence on the body through the nervous system, lymphvascular system, and other channels.

The blood, as of mesodermic and connective tissue source, is the channel of metabolic communication. The nervous system in common with epithelial or sensory tissue develops from the ectoderm, the nerve centres being analogous in this relation, to the relation of sexual glands to the connective tissue and contractile or initiative tissue of the mesoderm. (The entoderm is practically an extension of the ectoderm and requires no special mention in the analysis.) It is by the peculiar crossing of the upper and lower life cycles in histologic relations that organization takes its evolutionary possibilities. I intend to write a paper on the sexual reflex, but in brief I may say here that the factors of sexuality are *personal* and *associative*. The latter comprise the effects on the body of physical and intellectual companionship. The personal factors are essential states of the organic reflexes: initiative (choice and opportunity), temperament (all the shades of liking and disliking), nutrition (sthenic and asthenic variations), and the direct sexual influence. The sexual apparatus includes sets of glands which determine by their presence or absence structurally or functionally in whole or in part, the primary and secondary sexual attributes—coloring, plumage, skeletal conformation, and intellectual development, etc., etc.

When distinct sexual nature is not present, as in cases of physical or psychic hermaphroditism, the sexual reflex is unstable. When sexual inversion occurs, conflict of personality is sure to exist—along lines of physiochemic, somatic, or psychic cleavage. This source of irritation must cause a corresponding strain somewhere else in the economy, and which expresses itself by changes in the physiologic modes of motion. The great prevalence[9] of epilepsy or epileptic equivalents, in sexual inverts or perverts is to be expected as evidence of this fundamental strain.

It will be seen that the influence of each organic reflex is illustrated by a particular observation. In closing I want to say that while in epileptics transient and facultative intellectual values may be attained, in genius there is to be expressed a permanently superior sort of intellectual activity, one based on a real and complete superior co-ordination.

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A SAFE AND EFFECTIVE DEPILATORY.

The following is given in *The Medico-Pharmaceutical Critic and Guide:*

Take two parts of freshly-slaked lime, from which all the gritty particles have been removed, and mix with 3 parts of water. Through this mixture pass a stream of sulphuretted hydrogen; a pasty mixture of bluish-green color is obtained, having a slight odor of sulphuretted hydrogen; it is not in the least caustic, and may be handled without fear. It should be kept in wide-mouthed, brown-glass bottles, well-corked, as the carbon dioxide of the air decomposes it readily. Apply by spreading a thin layer with a spatula or spoon handle. If the hair is very long, it may be clipped off with the scissors first. The paste is left on for five minutes, and then with tepid water and a towel it is removed by gentle friction. The skin will be found completely free from any trace of hair and better shaved than by the sharpest razor. The paste is devoid of irritating properties. It should not be touched with hands wet with bichloride, as the hands will get black from the formation of the black mercuric sulphide.

BAD-NAUHEIM AND ITS TREATMENTS.

BY J. HOWE ADAMS, M.D., PHILADELPHIA.

PART II.

THE DISEASES FOR WHICH BAD-NAUHEIM IS ADAPTED AND THEIR TREATMENT.

Bad-Nauheim enjoys a long-tried and quite especial reputation for gout and various kinds of rheumatic affections. Regarding the character and nature of gout, it has long been known to be a constitutional disease, generally assailing men, and either hereditary or acquired by a too luxurious course of living. While digesting the nourishment conveyed into the body, uric acid is formed in great quantities and in a state not easy to be dissolved. At the same time other acids are produced in abundance and the blood and other organic fluids are affected by them, thereby losing alkalescence. Thus a new factor in the difficulty of dissolving the uric acid is created, which is consequently retained in certain parts of the body and not discharged in sufficient quantities with the urine.

The first thing to be considered is how to remove, as far as possible, the causes which aid the production of insoluble acid and its retention in the body, and then to do away with those troubles and complaints that have already been produced by the disease.

To accomplish the first part of the treatment the patient's style of living must, above all, be regulated. The diet should be a so-called mixed one, containing no superfluity either of carbohydrates or azotized food, but abundance of fresh vegetables and fruit. The taking of wine or beer is disadvantageous. If alcohol is necessary it is preferable to give brandy and similar liquors in water. It is not possible to give absolutely fixed regulations for all cases. Be guided by the bodily condition of the patient, his digestion, his occupation and his habits. But the principal rules which must be observed are: To avoid disordering the digestion, which would cause the formation of acids, and to prevent the abnormal formation and accumulation of insoluble uric acid in the body. For the same reason, and in order to promote the expulsion of the uric acid, much exercise in the open air is requisite. Bathing and mineral waters likewise serve this end.

By drinking mineral waters many things can be effected—the promotion of the change of tissues, the improving of the digestion and the supplying of alkalies, especially of bicarbonate of soda, but also of potassium, calcium and lithium salts, in order to increase the alkalinity of the organic fluids and thereby their ability to dissolve the uric acid and to excrete it with the urine in the form of urates.

The object of the bathing should be to produce, by a powerful stimulation of the peripheric circulation and innervation, a change in the composition of the physical fluids; patients suffering from gout find a decided effect on the solubility of the uric acid and its excretion by the urine by means of baths. It does not infrequently occur, therefore, that during such a course an attack of gout comes on, but quickly passes away, an event that I do not consider at all undesirable, especially for those patients with whom the gout has already taken a chronic form. For these the baths have still a further purpose, namely, to relieve, or, if possible, to remove entirely the complaints which the gout has left behind, *i.e.*, swelling of the joints, stiffness, etc. The course of baths usually begins with thermal brine baths having a temperature of 93° to 95° Fahr., gradually making way for the stronger and more stimulating kind of baths. The effervescent baths from Spring 12 are especially effective with their natural warmth of 92° Fahr. To promote the absorption of exudata and to remove the stiffness produced by it, the current thermal baths and current effervescent baths are often efficacious. Beneficial effects are frequently produced by warm showers being applied to the joints in question as well as by massage and both active and passive gymnastic movements.

For the fresh form of gout, coming on in acute attacks, a course of twenty to twenty-five baths is mostly sufficient. By a gradual transition to cooler baths (82½° Fahr.), which at the end of the course are followed by frictions with cool water (down to 65° Fahr.), strengthen the entire organism and make it more capable of resisting disease.

Less brilliant, however, are the results in cases of chronic gout as regards entire recovery. But Groedel has obtained very satisfactory issues in improvement of swellings, stiffness and difficulty in moving certain joints and the revival of sinking physical strength. A longer course of baths with a slower procedure is of course necessary in this case, the more so, if at the same time the internal organs are deranged, especially the heart. The baths with a very high temperature, 97—100° Fahr., which are recommended by some physicians and are customary in many watering-places, have often, according to Groedel, a weakening effect; it is precisely against a treatment consuming physical power, that we have to guard such patients. For the same reason baths with too cool a temperature (under 91° Fahr.) are not recommendable, nor can they be borne, and every hardening attempt is therefore to be avoided.

DISEASES OF THE HEART.—DISORDERED CIRCULATION.

Acute articular rheumatism is very often combined with endocarditis. In the great majority of cases this results in a damaged heart, which is caused by the curling or shrinking of some cardiac valve or infiltrations and thickening of the same, also frequently by the narrowing of the heart's orifices. Physicians never ventured to send such patients to bathing-places formerly, as it was feared the baths would excite the action of the heart. Yet as early as the year 1859 appeared a contrary opinion expressed in Prof. Beneke's first work upon Nauheim, and another still more decided statement in his second work published in 1861. Among those patients suffering from rheumatism, who came under his treatment in Nauheim there were eight cases of organic heart disease, and he found that they were able to bear the thermal brine baths very well and without any irritation or symptoms of congestion appearing, and that taking the baths was not only beneficial to their rheumatism, but to a certain degree, profitable to their cardiac malady.

In 1870 Beneke wrote a larger work, in which he explained his views more fully and it was only after this that patients with heart disease, more especially in conjunction with rheumatism, came to Nauheim in great numbers. In a monograph which appeared in 1872 Beneke recorded 101 cases and he gave a detailed account of 55 of them. In 1875 he published another article on the same subject in a Berlin medical journal. If we examine all these works we find that Beneke draws attention to four main points in the Nauheim treatment of heart disease: firstly, the removal of rheumatic ten-

dencies, whereby relapses of acute rheumatism, which would increase an existing cardiac lesion, are prevented; secondly, the effect of these baths being to promote absorption, he believes that, as they cure other productions of rheumatic inflammation, so they will also be beneficial to the cardiac valvular apparatus; thirdly, he found that the baths always had a soothing effect upon the heart's action, even where there was no rheumatism, and consequently, fourthly, he very often found, in old valvular diseases, a striking improvement in compensation (complete recuperation of enfeebled heart action), as well as considerable amelioration in the general state of health, which can doubtless also be obtained without a treatment of the thermal baths, but which they have attained in cases where no other treatment had been able to do so.

Beneke has thus the indisputable merit of having introduced a new kind of treatment into the therapeutics of chronic heart disease by first showing that patients suffering from a cardiac malady can not only support a treatment of baths, but also improve their health by taking them.

Thus the task of all other works that have since been written on the subject has been to give a fuller explanation, based upon more profound scientific examinations and a continued observation of yearly increasing numbers of patients, of the peculiar favorable effect, which the baths have upon cardiac diseases; also to improve the treatment and, through greater experience, to specify the indications. This was the first occasion in which it was reported that the baths increase the energy of the heart's action and therefore it was afterwards stated, that this bathing was a first-class tonic for heart diseases.

This was followed by other papers by the late Augustus Schott and Groedel, which partly brought to light new facts about the effect of Nauheim baths upon the circulation of the blood and partly confirmed by many observations what was already known. Thus the assertions made by Beneke that the baths always lessened the frequency of the pulse, and that the decrease lasted for some time after the baths had been taken, were proved to be correct. At the same time the blood-pressure as well as the power of respiration were increased by the baths. A marked diminution of the dilatation is formed during the treatment, and also an increase of the vital capacity of the lungs together with a disappearance of bronchitis, œdema, swelling of the liver, albuminuria dependent on congested kidneys, in short, all those symptoms which arise from incompetence of the cardiac muscle.

Again the question arises whether the bath-treatment be suitable in all cases. From the beginning it soon became evident that a separation of the different kinds of disordered circulation was impossible. Although Beneke formerly believed, that arteriosclerosis must be excluded from the treatment, for theoretic reasons, yet Groedel can now state that the baths are also beneficial in such cases. In the course of years Groedel treated a large number of patients suffering from advanced arteriosclerosis, he never had an accident to report; on the contrary, the usual effect was a considerable improvement of the circulation and general state of health.

The carbonic acid thermal brine baths tend to soothe and regulate the heart's action, improving its innervation and increasing its muscular tone.

If the contraction of the cutaneous vessels lasts too long, as is the case with the ordinary cold baths, over-exertion of the heart takes place. By this peculiar quality of the carbonic acid just mentioned of increasing the circulation of the blood in the skin, so that it becomes red all over, the bather feels a greater degree of warmth, than in an ordinary cool bath and that without any unpleasant feeling. The baths are also graduated to suit each individual case and are at first prescribed with a temperature little lower than the normal heat of the body and with such a small quantity of carbonic acid that it can only have a very slight effect on the heart and vessels. If the irritation of the cold has too great an effect, lasts too long, or is not counterbalanced by the carbonic acid (as shown by cyanosis, shortness of breath or continued shivering), then the temperature of the bath must be raised and the amount of carbonic acid increased afterwards. When the patient can bear the carbonic acid well, the temperature is then again cautiously lowered, and, if necessary, only after he has been in the bath for some time. (In most cases the temperature is reduced one-half degree centigrade from one bath to the other.)

It has not yet been ascertained whether the chemical, thermic and mechanical irritation of the cutaneous nervous system by the bath has not a direct effect by reflexion or continuation on the greater vessels and the heart, in the same way as we can perceive at the peripheric vessels. But, although it is impossible to prove this mathematically, we must be content to accept it for the following reasons: first, considering the well-known attempts made with other skin-irritants and their effect on the circulation; and secondly, by reason of the above-mentioned influence of the baths upon blood-pressure, respiration, etc., which are not to be sufficiently explained by the proceedings in the peripheric vessels alone. The incontestable success which the baths have on the heart's function and the entire circulation is only to be explained if we believe in a direct action by way of the end-organs of the cutaneous nerves on the central vascular and cardiac nervous system, both trophic and motoric. To produce improved nutrition and invigoration of the cardiac muscle it is necessary to stimulate the heart to a more powerful action, not continuously, but so as to alternate rest and relief with exercise in a manner suitable to each individual case. As has been seen from the above explanations, the baths answer this purpose perfectly and therefore it is not necessary to give fuller particulars as to how the cardiac muscle is at length revived and invigorated by the effects of a continued course of baths. In addition to this, the influence of the baths in promoting transformation of tissues is, when properly used, not only beneficial to the entire organism, but also to any disabled organ.

It is evident that the Nauheim baths are adapted to all kinds of disordered circulation of the blood requiring an invigoration of the cardiac action; it is quite immaterial whether the illness arises from valvular defects, or is the result of a diseased cardiac muscle, of atheromatous degeneration of the vessels, or even of a generally abnormal nourishment, such as obesity.

Great success has also been obtained in illness resulting from irregular innervation of the heart, more especially in cases of nervous palpitation. This should be chiefly attributed to the well-known beneficial influence of the Nauheim baths upon all diseases of the nervous system, either organic or functional, and which is additional proof that the baths have also tonic effect on the cardiac and vascular nervous system.

SCHOTT'S TREATMENT OF CHRONIC HEART DISEASE.

To American physicians, however, Nauheim is chiefly noted for the so-called "Schott method of the treatment of chronic heart disease." W. Bezly Thorne, an English physician, published a paper in March, 1891, in the *Lancet*, by Theodor Schott, in which it was explained the principles of the treatment of these conditions by the use of mineral baths and exercises. In 1895 Dr. Thorne published his book on this subject, and it is to him that the English-speaking races owe the introduction of an efficient measure in an apparently incurable and hopeless condition. Dr. Thorne found in his own case that his pulse averaged seventy-four beats a minute in the recumbent position and eighty-four in the sitting. Within two minutes of immersion in a sprudel bath the rate fell to sixty or sixty-four. In ten minutes it had risen to sixty-eight, and stayed there for the remainder of the bath—fifteen mjnutes in all. The exertion of dressing raised the rate ten beats to the minute, but after the prescribed recumbent position had been assumed it returned to about sixty-five, with increased volume, so remaining during the period of rest. The influence of the bath was not limited to the time of immersion. Thorne's heart was normal, so, by way of comparison, he took "a patient aged forty-six, whose health had been declining for several years, was found to have a pulse of eighty in the recumbent and of eighty-eight in the sitting position. While he stood it varied from one hundred to one hundred and four; if he walked ten paces it rose from one hundred and twenty to one hundred and thirty beats. The apex was found to beat an inch outside the nipple line. Within two minutes of immersion in his first thermal bath (Spring No. 7, divested of the greater part of its carbonic acid gas, temp, 90.5° F.) the pulse had fallen to seventy, and, judged by the finger, appeared to have doubled in volume. At the end of four minutes it was sixty-eight; in six minutes, sixty-six, and, while standing, after dressing, it was ninety. He left the bath after an immersion of ten minutes. The apex beat was found to have receded half an inch in the direction of the median line; his nails and fingers, which had been snow-white assumed a healthy flesh tint. The immediate effect of the first few baths is to produce a sense of oppression at the precordium, under the influence of which the patient breathes slowly and deeply for two or three months. Respiration then becomes easy, and continues slower by two or four breaths a minute." The effect on the peripheral vessels is to increase their carrying power; a glowing sense of warmth is experienced in the extremities and in the surface of the body generally. The veins are stimulated to a similar activity. In fact, the general arterial capacity is increased, and without loss of blood the relief of a general bleeding is afforded to an overloaded and laboring heart.

In three or four days, especially where the flow of urine has been scanty, there ensues a free diuresis, which may continue for some time. The deep-seated organs are relieved of congestion, the metabolic charges become improved and accelerated, and the heart derives from an improved coronary circulation materials for the repair of its damaged tissues.

It is not claimed by Schott that these waters are unique in their action; in fact, this authority has insisted that identical results may be obtained from baths artificially prepared. Thus it is recommended that the treatment begin with a 1 per cent. solution of common salt, the strength to be gradually raised to 2 or 3 per cent. For the cutaneous excitation chloride of calcium is to be used, two-tenths of a per cent. approximating Spring No. 7; three-tenths that of Spring No. 12. To produce the carbonic acid effervescence, the action of hydrochloric acid on bicarbonate of soda is sufficient. Place the various salts, including the soda, in the bath; place the acid in a bottle at the bottom of the bath, withdrawing the stopper. This bath will be ready for use in two or three hours. The bath can be made ready in five minutes by moving the bottle rapidly through the bath near its surface.

As to the effervescence, it can be regulated in mild, medium and strong forms by the proportion of acid to the bicarbonate, one-half pound of the salt to three-quarters of a pound of the acid (25 per cent.) making a mild bath; one pound of the salt to a pound and a half of the acid, a medium bath, and two pounds to three, making a strong bath. Nowadays, however, acid tablets and packages of alkaline powder can be purchased to secure the effect desired.

As a result of these baths, the cardiac tracings are markedly improved, much more than the mere physical examination reveals.

Schott did not stop here, however, but Theodor Schott, assisted by his brother, August, devised a system of exercises which bring as striking results as the baths themselves. It is impossible in a paper of this length to give the details of these movements. The reader is advised to get Thorne's book and study it carefully. There is no need of sending patients to Nauheim for this work. Simply stated, Schott called his exercises "Widerstandsgymnastik," or, literally, gymnastics with resistance. A better term in English is "resisted movements." They consist of movements calculated to bring into successive and regulated control almost every collective system of voluntary muscles in the human body. Each movement is resisted by an attendant to such a degree as to oppose without arresting it; they consist of slowly conducted flexion and extension, adduction, abduction and rotation, in orderly succession, of the arms, the trunk and the lower extremities. Each movement must be evenly and slowly made, with a definite and uniform effect on the part of the patient.

The essence of this treatment lies in the experience and intelligence of the assistant; it is his duty to perform the resistances, impose intervals of rest, to enjoin slow and regular breathing, and especially to see that no undue strain is placed on lungs and heart. Palpitation of the heart and perspiration must be avoided.

As a result of this treatment it is not unusual to see the oblique long diameter of the cardiac area of dulness diminish by from three-quarters of an inch to an inch and a half, and also frequently a diminution in the vertical measurement of the liver of two inches. As a result, the patient breathes easier and more deeply and experiences a sense of relief. Of course, the whole of this gain is not permanent, but a portion of the good results remains. As time passes the relief becomes more permanent. Sufficient recovery of heart power and efficiency, together with improvement in the general health, justifies the assertion that it lengthens life and in a great number of instances permits the patient to return to the cares and duties of an active career.

Schott believes that benefit may be expected in cases

of chronic heart disease, excepting where the myocardium has reached an advanced state of degeneration or the vessels are the seat of advanced arterio-sclerosis.

SHOULD DEAF PEOPLE MARRY?

BY H. M. HAYWARD, M.D.

SOME years ago Professor Fay, of Gallaudet College, published an exhaustive work on the subject of the marriage of deaf persons as his part in the work of the eleventh census. It does not seem to have attracted much attention from the medical profession at large, so I take the opportunity to presents its features to the profession. Professor Fay directed his attention to the following four queries:

1. Are marriages of deaf persons more liable to result in deaf offspring than ordinary marriages?

2. Are marriages in which both of the partners are deaf more liable to result in deaf offspring than marriages in which one of the partners is deaf and the other is a hearing person?

3. Are certain classes of the deaf, however they may marry, more liable than others to have deaf children? If so, how are these classes respectively composed, and what are the conditions that increase or diminish this liability?

4. Aside from the question of the liability of the offspring to deafness, are marriages in which both of the partners are deaf more likely to result happily than marriages in which one of the partners is deaf and the other is a hearing person?

The term "deaf," in its widest application, includes, of course, all degrees of imperfection of hearing. For example: "Von Troltsch declares that every third person between twenty and fifty years of age is more or less deaf, at least in one ear." There is reason to believe that slight imperfection of hearing is of scarcely less importance in connection with the question of heredity than total deafness; but, in order to bring the inquiry within reasonable limits and to render the calculation of percentages feasible, it was necessary to draw a line of demarcation somewhere. The term "deaf," as used by Fay, invariably refers to the class of persons for whose benefit our "schools for the deaf" are intended—persons so deaf from birth, childhood or youth that they cannot be educated in common schools, persons who are more frequently but less accurately classed as "the deaf and dumb" or "deaf mutes." It includes all persons who are recorded in school reports, census reports, marriage records, etc., as "deaf," or "very hard of hearing," and all who have attended schools for the deaf. Persons recorded as "slightly deaf," "partially deaf," "deaf in one ear," "deaf in adult life," "hard of hearing," etc., are not included, unless they have attended schools for the deaf.

Fay began his inquiry in the year 1889, and the work has continued uninterruptedly since that time.

The following blank marriage record was prepared and copies were widely distributed among heads of schools for the deaf, the deaf themselves, and their relatives and friends:

Marriage record of.....(husband).....(name of wife before marriage).

I. Details Relating to Marriage.

1. Date of marriage? Place of Marriage? Were the parties related before marriage? If so, what relationship? Give any other details known relating to marriage.

2. Offspring. Total number of children born of this marriage? How many deaf? How many hearing? How many died in infancy? Give any other details known relating to offspring; for example—names, dates of birth or death, causes of death, ages at death, etc., where possible. If any are or were deaf, write the word deaf after their names.

II. Questions to be Answered by Husband.

1. Parentage. Name of your father? Name of your mother before marriage? Were your parents related before marriage? If so, what relationship? Give any other details known relating to parents; for example—causes of death, dates of death, ages at death, etc., where possible.

2. Brothers and Sisters. Give your full name and date of birth and the names of your brothers and sisters, with dates of birth, if possible. Where dates are not given, state whether names are in the order of birth or not. How many of these (yourself included) are or were deaf? How many hearing? How many died young (under two years)? Give any other details known; for example—causes of death, ages at death, etc. Write the word deaf after the names of all who are or were deaf.

3. Other Relatives. Have you any deaf relatives other than brothers and sisters or children? If so, give relationship, and name, if possible.

4. Note. Are you deaf or hearing? If deaf: Age when deafness occurred? Cause of deafness? Attended what school or institution? Residence when admitted? Year when admitted? Age when admitted? Years under instruction? Present residence? Occupation?

III. Questions to be Answered by Wife.

1. Parentage. Name of your father? Name of your mother before marriage. Were your parents related before marriage? If so, what relationship? Give any other details known relating to parents; for example—causes of death, dates of death, ages at death, etc., where possible.

2. Brothers and Sisters. Give your full name and date of birth, and the names of all your brothers and sisters, with rates of birth, if possible. Where dates are not given, state whether names are in order of birth or not. How many of these (yourself included) are or were deaf? How many hearing? How many died young (under two years)? Give any other details known; for example—causes of death, ages at death, etc. Write the word deaf after the names of all who are or were deaf.

3. Other Relatives. Have you any deaf relatives other than brothers and sisters or children? If so, give relationship and names, if possible.

4. Note. Are you deaf or hearing? If deaf: Age when deafness occurred? Cause of deafness? Attended what school or institution? Residence when admitted? Year when admitted? Age when admitted? Years under instruction? Present residence? Occupation?

IV. Remarks.

Date of information.

(Signed) .....

The replies received to the inquiries contained in the above blank marriage record were far more numerous and more complete than was anticipated by Fay. Several thousand records have been returned, with the questions more or less fully answered.

The work was undertaken in the hope that it might be of service to the deaf and to society by settling definitely the question whether or not the deaf are more liable than hearing persons to have deaf children; and, if it should appear that, notwithstanding the numerous insances to the contrary, they are more liable to this result, by ascertaining whether or not the liability is increased by the marriage of the deaf with one another; also whether certain classes of the deaf, however married, are more liable than others to have deaf children; and, if this should prove to be the case, by determining how these classes are respectively composed, so that, as the result of the conclusions reached, in many instances deaf persons might be advised to follow the choice of their own hearts in marriage, with no restrictions whatever except such as should influence all right-minded persons in this important matter; while in cases where the deafness of the parent was unquestionably more liable than in others to reappear in the offspring, the persons interested might be effectively warned in time of the danger incurred.

The number of marriages of which the results with respect to offspring have been reported, one or both of the partners in marriage being deaf, is 3,497. Of these marriages 419 were very recent, having taken place less than a year before they were recorded, and consequently, offspring was not to be expected from them. These 419 marriages were excluded from the tabulation that follows, leaving 3,078 marriages of a year's standing or longer. The total number of children reported as born of these 3,078 marriages is 6,782. The actual number of children is probably somewhat larger than this; while as many of the married couples are still living, the future results may be different from those here reported. Let us briefly consider one question, which, though of less interest, is not without importance from a sociological and physiological point of view, viz.: Are marriages of the deaf less productive of offspring than ordinary marriages? According to statistics of marriages of former pupils of the Hartford School, published by Dr. Williams, principal of that school, they are much less productive. Of the 590 marriages he reported, 283, or 47.9 per cent., were without offspring. Dr. Williams says on this point: "It will be noticed that nearly one-half of the marriages are without issue, so far as we have been able to learn. It is probable that in some cases there have been children of whom we have received no account. In other cases the marriages are of recent date; but, making due allowance for all these, the proportion of sterile marriages is still very large, much exceeding that in the general population. It is a serious question whether nature alone is responsible for this barrenness."

The proportion of sterile marriages contained in the collection of Fay is not nearly as large as in the statistics reported by Dr. Williams. Of the 3,078 marriages of a year's standing or longer, of which the results have been reported, only 434, or 14.1 per cent., were without offspring; not a large proportion; probably it is not much larger than that of ordinary marriages. We have no statistics of sterility in marriage for the whole country with which to compare this result, but the proportion of married women living in Massachusetts in 1885 who were without children was 17.5 per cent.

It is a curious fact that marriages of the deaf are more common in America than in Europe; the former pupils of Aemerican Schools for the Deaf recorded as married constitute 23.1 per cent. of the whole number who attended school up to the year 1890, and the actual percentage of the married deaf of America is probably much higher. In Denmark the proportion rises as high as 23 per cent.; while in the other countries it varies from 12 to 7 per cent. This more frequent marriage of deaf persons in America is probably due to the absence of certain restrictions that hamper marriage more or less in most European countries, and partly to the more prosperous circumstances, and consequent greater ability to support a family, of the deaf in America. The marriages of deaf persons in America have increased at a high rate of progression during the present century. The proportion of the marriages recorded for the first decade to the whole number of marriages during the century is 0.02 per cent., while for the third decade it is 0.18 per cent., and in each subsequent decade it increases until in the ninth it is 22.7 per cent. Allowing for the increase in population, and for the fact that the marriages of the later decades are probably more fully recorded the high rate of progression indicated is doubtless largely due to the establishment of schools for the deaf, for, not only do the opportunities for acquaintance afforded by school life tend to promote marriage, but the effect of education is to bring the deaf into closer relations with society and to increase their ability to marry and support a wife and children.

The majority of the married deaf have married deaf rather than hearing partners; the proportion of marriages in which both partners were deaf being 72.5 per cent. This fact has been ascribed to their environment during education, which brings them together in boarding-schools and fosters the use of the sign-language. No doubt this environment has had some influence in promoting their marriage with one another; but that it is the chief cause is shown by the fact that 77 per cent. of the deaf here recorded who attend day-schools, 78 per cent. of those who attended exclusively oral schools, and 62 per cent. of those who attended no school for the deaf, married deaf partners. The chief cause that leads deaf people to marry one another rather than hearing persons, and one that effects those who have been educated in day and oral schools, and even those who have attended no school for the deaf, in only a little less degree than those who have been segregated for the purposes of education and have attended schools not exclusively oral, is the deep feeling of fellowship and sympathy which has its roots in the similarity of condition of all deaf people.

Marriages of deaf persons, one or both of the partners being deaf (taken as a whole, without regard to the character of the deafness), are probably somewhat less productive than ordinary marriages; the proportion of marriages of the deaf without offspring is 14.1 per cent., and the average number of children to each mother who had children is 2.61. In Massachusetts in 1885 the proportion of women without offspring was 17.56 per cent., and the average number of children to each mother who had had children was 4.11. The actual difference in the average number of children to a mother is doubtless less than these figures would indicate, as the children of the deaf are probably not fully reported and a considerable proportion of their mar-

riages are of recent date. Marriages in which both of the partners are deaf are somewhat less productive than those in which one of the partners is deaf and the other a hearing person; the proportion of marriages of the former class without offspring is 15 per cent., and the average number of children to each marriage resulting in offspring is 2.5; in the latter class the proportion without offspring is 11 per cent., and the average number of children to each marriage is 2.9. Between marriages of the congenitally deaf and those of the adventitiously deaf, there is not much difference in productiveness, but the former are probably slightly less productive. In marriages of the former class, one or both of the partners being congenitally deaf, the proportion without offspring is 15.5 per cent., and the average number of children to each marriage resulting in offspring is 2.72; in marriages of the latter class, one or both of the partners being adventitiously deaf, the proportion without offspring is 14 per cent., and the average number of children to each marriage is 2.47. The less number of children from marriages of the adventitiously deaf is perhaps due to the fact that the average duration of the marriages of this class recorded was probably less than that of the marriages of the congenitally deaf, as a majority of the earlier pupils of American schools were congenitally deaf, while within recent years a majority of the pupils have been so placed.

Marriages of deaf persons, one or both of the partners being deaf (taken as a whole, without regard to the character of the deafness), are far more liable to result in deaf offspring than ordinary marriages. The proportion of marriages of deaf persons resulting in deaf offspring is 9.7 per cent., and the proportion of deaf children born therefrom is 8.6 per cent. Just what proportion of ordinary marriages result in deaf offspring and what proportion of deaf children are born therefrom, we do not know, but they are probably less than one-tenth of one per cent. Contrawise, marriages of the deaf are far more likely to result in hearing offspring than in deaf offspring, the proportion of hearing children reported being 75 per cent., and the actual proportion probably considerably higher, while that of deaf children, as above stated, is 8.6 per cent. These results are in accordance, on the one hand, with the law of heredity that a physical anomaly or an unusual liability to certain diseases existing in the parent tends to be transmitted to the offspring, and, on the other hand, with the law of heredity that the offspring tend to revert to the normal type.

To transmit the physical condition that results in deafness, it is not necessary that both of the partners in marriage should be deaf; on the contrary, taking the deaf as a whole, without regard to the character of deafness, marriages in which both of the partners are deaf are not more liable to result in deaf offspring than those in which one of the partners is deaf and the other is a hearing person. Indeed, they seem to be less liable to result in deaf offspring. The proportion of marriages in which both of the partners were deaf that resulted in deaf offspring is 9.2 per cent., and the proportion of deaf children born therefrom is 8.4 per cent.; the proportion of marriages in which one of the partners was deaf and the other was a hearing person, that resulted in deaf offspring, is 12.5 per cent., and the proportion of deaf children born therefrom is 9.8 per cent. If, instead of the number of marriages, we regard the number of deaf married persons, the number of deaf children born to every 100 deaf persons married to deaf partners is 9.4, while the number born to every 100 deaf persons married to hearing partners is 25.8. Even in marriages where both of the partners were congenitally deaf, the large proportion of them resulting in deaf offspring (24.7 per cent.) and of deaf children born therefrom (25.9 per cent.) can be explained in most cases by the circumstances that there were two persons instead of one liable to transmit the physical condition that results in deafness; for, if we regard the number of congenitally deaf married persons, we find that the number of deaf children born to every 100 congenitally deaf persons married to congenitally deaf partners (30.8) is not greater than the number born to every 100 congenitally deaf persons married to hearing partners (34.2). *In the majority of cases no intensification of the liability to deaf offspring* seems to be caused by the union of two deaf persons.

This is not inconsistent with the general law of heredity that the liability to the hereditary transmission of any characteristic existing in the parent is increased by the union of "like with like"; for, when the deafness of the parent reappears in the offspring the characteristic transmitted is not deafness, as has been generally assumed by writers who have discussed this subject, but it is some anomaly of the auditory organs or of the nervous system, or the tendency to some disease of which deafness is but the result or the symptom. As these anomalies and diseases resulting in deafness are many and various, it is probable that in most marriages of deaf persons, and even of congenitally deaf persons, the pathological condition that results in deafness is not the same in one partner that it is in the other, and their marriage therefore is not, from a physiological point of view, a union of "like with like."

Where the pathological condition of the two partners is the same, as it probably is in the majority of consanguineous marriages of deaf persons, there is doubtless an intensification of the liability to deaf offspring; but, happily, such marriages are comparatively rare. The number of them is 31, which is 0.69 per cent. of the whole number of marriages. The proportion of these 31 marriages that resulted in deaf offspring is 45 per cent., and the proportion of the deaf children born therefrom is 30 per cent. The curious circumstances above noted that the percentages of marriages resulting in deaf offspring and of deaf children born therefrom are larger where one of the partners was a hearing person than where both of the proportion of consanguineous marriages reported was much greater where one of the partners was a hearing person (2 per cent.) than where both of them were deaf (0.37 per cent.).

Congenitally deaf persons, no matter to whom married, are far more liable to have deaf offspring than are adventitiously deaf persons. The proportion of marriages of the former class, one or both of the partners being congenitally deaf, resulting in deaf offspring, is 13 per cent., and the proportion of deaf children born therefrom is 12 per cent.; in marriages of the latter class, one or both of the partners being adventitiously deaf, the proportion resulting in deaf offspring is 5.6 per cent., and the proportion of deaf children born therefrom is 4.2 per cent. The liability to deaf offspring is greatest, of course, when both the parents are congenitally deaf, the proportion of

marriages resulting in deaf offspring in such cases being 24.7 per cent. and the proportion of the deaf children born therefrom 25.9 per cent. Marriages of adventitiously deaf persons are more liable to result in deaf offspring than ordinary marriages, but when both of the partners are adventitiously deaf or one of them is a hearing person the liability is slight. The proportion of marriages resulting in deaf offspring where both partners were adventitiously deaf is 3.5 per cent., and the proportion of deaf children born therefrom is 2.3 per cent. Where adventitiously deaf persons were married to hearing partners the proportion of marriages resulting in deaf offspring is 3.2 per cent., and the proportion of deaf children born therefrom is 2.2 per cent. Where they were married to congenitally deaf partners the proportion of marriages resulting in deaf offspring is 8 per cent., and the proportion of deaf children born therefrom is 6.5 per cent. The greater liability to deaf offspring to marriages of the congenitally deaf than of the adventitiously deaf is in accordance with the generally accepted law of heredity that congenital or innate characteristics are more likely to be transmitted to the offspring than acquired characteristics. When the deafness of adventitiously deaf parents does reappear in the offspring we may suppose that the physical anomaly or tendency to disease of which deafness was the result was probably consanguineous in the parent, though actual deafness did not appear until some period later in existence.

Deaf persons having deaf relatives, however they are married, and hearing persons having deaf relatives and married to deaf partners, are very liable to have deaf offspring. However the marriages of the deaf are classified with respect to the deafness or hearing of one or both of the partners, or with respect to the congenital or adventitious character of the deafness, the percentage of marriages resulting in deaf offspring and the percentage of deaf children born therefrom are almost invariably highest where both of the partners had deaf relatives; next highest where one of them had deaf relatives and the other had not, and least where neither had deaf relatives, the only exceptions being in a few classes where the totals are too small to be regarded as impressive.

Taking all the marriages of a year's standing or longer, of which the results have been reported, where both of the partners had deaf relatives the proportion of them resulting in deaf offspring is 23.5 per cent., and the proportion of deaf children born therefrom is 20.9 per cent.; where one of the partners had deaf relatives and the other had not, the proportion of marriages resulting in deaf offspring is 6.6 per cent., and the proportion of deaf children born therefrom is 6.4 per cent.; where neither of them had deaf relatives the proportion of marriages resulting in deaf offspring is only 2.3 per cent., and the proportion of deaf children born therefrom 1.2 per cent. Probably the actual percentages of marriages resulting in deaf offspring and of deaf children born therefrom, where neither of the partners had deaf offspring, are even less than these, for in some cases the statements of the marriage records that neither of the partners had deaf relatives are not well authenticated, and in all of them there is the possibility that there were deaf relatives unknown to the persons who filled out the record blanks. Where neither of the partners has deaf relatives the liability to deaf offspring is very slight—perhaps not greater than in ordinary marriages. In marriages where both of the partners are congenitally deaf and both have deaf relatives, the proportion of them having deaf offspring and the proportion of deaf children born therefrom are very high (28.4 and 30.3 per cent.), but where neither of the partners has deaf relatives, even though both of them are congenitally deaf, the liability seems to be slight—perhaps not greater than in ordinary marriages. Fourteen marriages of this class are reported, resulting in twenty-four children. Of these children one was deaf, but in this case the statement of the marriage record that neither of the partners had deaf relatives is not well authenticated. If we accept the statement, the proportion of marriages of this class resulting in deaf offspring is 7.1 per cent., and the proportion of deaf children born therefrom is 4.1 per cent.; but if we reject it, there remains not a single instance of marriages in which both of the partners were congenitally deaf, and neither had deaf relatives that resulted in deaf offspring. Though the total number of marriages of this class is not large enough to render the result conclusive, yet, taking them in connection with the 111 other marriages of congenitally deaf persons in which neither of the partners had deaf relatives, we are justified in concluding that, while congenital deafness may be a prima facie indication of a liability to deaf offspring, it is not to be accepted as a conclusive evidence of such liability.

The possession of deaf relatives, on the other hand, seems to be a trustworthy indication of a liability to deaf offspring. If a deaf person, whether congenitally or adventitiously deaf, has deaf relatives, that person, however married, is liable to have deaf offspring, the liability being much greater, however, in the case of the congenitally deaf than in that of the adventitiously deaf; and if a deaf person, whether deaf or hearing, who has deaf relatives, the marriage is liable to result in deaf offspring. If both partners have deaf relatives, the physical conditions tending to produce deafness, whatever they may be, are liable to be transmitted from both parents, and the probability of deaf offspring is therefore largely increased; but even when only one of the partners has deaf relatives, the liability to deaf offspring is still considerable.

The marriages of the deaf most liable to result in deaf offspring are those in which the partners are related by consanguinity. Thirty-one such marriages are reported in the marriage records, and of these fourteen, or 45.1 per cent., resulted in deaf offspring. One hundred children were born from these 31 marriages, and of these thirty, or 30 per cent., were deaf.

The totals of the several classes of relationship, as first cousins, second cousins, etc. and the totals of the several classes of marriage, as of both of the partners deaf, one of the partners deaf and the other hearing, one or both of the partners congenitally or adventitiously deaf, one or both of the partners having other deaf relatives or not, are too small to enable us to form conclusions as to their comparative results; but the large percentage of marriages resulting in deaf offspring, and of deaf children born therefrom, in every one of these classes, indicates that it is exceedingly dangerous for a deaf person to marry a blood relative, no matter what the character or degree of the relationship may be, and no matter whether the relative is deaf or hearing, nor whether the deafness of either or both or neither of the partners is congenital, nor whether either or both or

neither of them have other deaf relatives.

Consanguineous marriages are so much more liable to result in deaf offspring than ordinary marriages of the deaf, because in such marriages the same condition tending to produce deafness is likely to exist in both of the partners, and, from the union of "like with like," to be transmitted to their offspring with increased force.

MARRIAGE AND THE OFFSPRING WITH REGARD TO TUBERCULOSIS.

BY JOHN B. HUBER, A.M., M.D., NEW YORK.

IT is essential, in considering the causation of tuberculosis to bear in mind two factors: the specific agency; and certain predispositions which make the body vulnerable to microbic attacks. In a previous paper contributed to this journal, the first of these factors was dwelt upon. I would now consider such predispositions as may affect the organism up to the period which terminates infancy.

To do this comprehensively would seem to require the expression of a Hibernicism—that to fortify the organism with a view to enabling it to withstand infection we must begin long before the birth of the child; or, as Oliver Wendell Holmes whimsically expressed it, "a man should be careful in the selection of his ancestors." Yet if we consider the matter deeply, we will be proceeding quite logically. For birth is but an incident in a succession of biological processes; nor is conception indeed anything else than a transmutation of older cellular elements, such as are contained in the ovum and the sperm, into a new cellular compound. And it is after all with the quality and virility of cells that we have primarily to do.

The practical deduction here is that those who contemplate marriage should proceed with caution, if they are conscious of any abnormal stigma, any suggestion of degeneracy in themselves. Undoubtedly the possibility of parentage on the part of men and women who are unfit—the nearly related, couples whose ages vary widely, the neurotic, or pervert or insane, the drug-habitues, those who have hereditary taint of alcoholism, the syphilitic, the consumptive—the possibility of parentage among such as these should be precluded as far as possible. Generally speaking all such are likely to transmit to their offspring vitiated tissues, upon which with unusual ease the Koch bacillus and its allied cocci may implant themselves and multiply. The principle of "natural selection" will act to prevent many such marriages. However, when they are contemplated, and the physician's advice is asked, he should permit no marriage where tuberculosis is active in either man or woman. Especially with regard to the latter is to be emphasized the possibility of death in child birth, or the perhaps even graver likelihood of physical wreck and death by lingering stages subsequent upon delivery. The physician should certainly not approve—for her own sake—the marriage of a tuberculous woman. "Pregnancy is found to complicate, to precipitate or to develop phthisis remarkably," (Osler). Another author states: "When consumption is hanging about a girl, the distance between the marriage bed and the grave is usually short with her. The husband, if he do not become a widower soon after the birth of the first child, may count upon a perpetually ailing wife."

A consumptive should not marry a person in health especially if the disease has existed a long time and is progressive; moreover, a latent tuberculosis may thus be transformed into an active and acute manifestation.

On the other hand a patient who has had no physical signs or other discoverable symptoms for two years, and whose metabolism appears to be normal, should be allowed to marry. Cornet considers there should be no marriage so long as the disease progresses. However, after there has been a relative recovery when the symptoms have been in abeyance for two or three years and a satisfactory general condition has been maintained, marriage need not be objected to. If a man be sufficiently well-to-do, and if his wife makes no great demands upon him, he is better off married than a bachelor, with all the unhappiness and discomfiture the latter implies. On the other hand a woman may be seriously harmed by marriage with all its consequences. She should be strong and toned up beforehand, not only for her own sake but for that of the offspring also. Conception must be discouraged in consumptive women; they stand the puerperium badly. The disease often assumes its most acute form after childbirth and then proves rapidly fatal. To save the mother's life abortion may have to be counseled.

After the melancholy features have been fully dwelt upon, the bright side of the matter is entitled to consideration. Although the observation first set forth concerning the transmission of a vulnerable organism by tuberculous parents generally holds good, many instances are scientifically recorded (Flick, King), in which the offspring of consumptive parents have been found to be singularly immune to that disease. Cornet states: "I have seen a number of such marriages give origin to many children, who are perfectly strong and well-developed."

Besides there are many (blessed and glorious fools) who will marry without regard to the opinions of physicians. I once met a fine old man in whose marriage the element of spontaneous and uncalculating love happened to have a place. His mother had counseled him not to marry the girl, who was consumptive. Nevertheless they married and immediately after went into the country. This was many years ago when the profession were not lauding sunshine, fresh air and good food in the treatment of consumption. He went at once to the butcher and made arrangements for the best meats to be sent to his house. Then he went to a neighbor who had a large vegetable garden and asked him to name his price (that was no object; no matter what it was it would be paid) for the privilege he desired of going into this garden as often as he liked and taking away as many vegetables as he should please to. And then to others who had good nutriment to sell. And so this couple lived together; and the wife did not die of consumption, but achieved good health and lived to bless him through many years. Was ever man more deserving of happiness?

When a consumptive has married the pair should be counselled that coitus should not occur in times of bodily or psychic fatigue, or during such ill-health as complicates the original affection.

When conception has occurred the physician will recall that during embryonic life the cells of the body become differentiated, and the organs are formed, increase in size and begin to take on their several functions; that during this period the organism of the coming infant is most acutely sensitive to environmental impressions—

such as, variations in oxygen supply, warmth, the constitution of the maternal blood, and the like. Before the birth, then, the mother should be safeguarded to the fullest possible extent, for the good of her offspring. She should have wholesome diet, sensible and hygienic clothing, should rest well at night and for an hour after lunch, should have frequent baths in tepid water and the like; especially should she be subjected to no undue mental strain or excitement.

If unfortunately the child at birth exhibits stigmata, either functional or anatomical, the physician should act without delay. He may have to deal with manifestations of the scrofulous temperament—the pallid skin and flabby flesh, tedious and subacute inflammations of the mucous membranes, enlargements of the lymph glands, unhealthy throats, bronchitis, disorders of the gastro-intestinal tract, sluggish metabolism. There may be strumous malformations of the chest, deficient ossification, stunted and weazened growth, a capacity for breathing obviously below the average, a defective development of the circulatory system, impoverished blood and the like. Rectification to the normal point may be impossible. Nevertheless everything should be done to mitigate abnormal conditions as much as may be, not only for the sake of the child itself, but for the avoidance of baneful effects upon future generations. Functional modifications are more important than anatomical ones. They are more likely to be transmitted. And obviously they are more amenable to treatment. Although there may be no definite anatomical stigmata, a pernicious nutritive habit is often transmitted, with which the physician may have to deal. Such patients will have to be kept under observation, not for weeks or months, but for years.

A weak and consumptive mother should not nurse her infant. Although there is little likelihood of her milk itself being infected, it is generally not sufficiently nutritious. Lactation is a great drain upon the mother's strength and may precipitate a fatal termination to her disease. Besides the infant may contract inhalation tuberculosis while taking the breast. Either a wet nurse should be found, or the infant should be bottle-fed. The latter is the better way, in view of the well-nigh perfect system of infant feeding which physicians have now evolved. In large cities, both public and private charities have become so active in this regard that the poorest people may have excellent milk properly modified at little, or no cost at all, if need be.

The separation of an infant from the tuberculous mother is a matter not easy of adjustment or decision. Certainly there is little occasion if the mother be properly instructed and conscientious, and if the infant be bottle-fed. The maternal impulses should receive much consideration. Such separation is often impracticable among the poor. In many cases it were well if the mother would have her child taken care of for part of the day in a general nursery, such as the charitable provide in cities. Many poor people cannot be without their children; many are not willing to be; separation should not be—nor can it be—compelled. In any event the infant's home should be made free of infection by disinfection and thorough purification. The floors should be particularly clean, and carpetless, if possible. The infant should be properly clothed and well bathed.

Adenoids and enlarged tonsils should be removed. The child must not be starved for oxygen. Sleeping children should have plenty of air. Their uncovering themselves in cool air need not be feared. Sleeping garments of the grain-bag variety may be provided them. All respiratory and circulatory affections—sore throat, bronchitis, anaemia and the like—should be efficiently treated. Convalescents after weakening diseases—diphtheria, pertussis, measles, scarlet fever—should be carefully nurtured, and, if possible, sent into the country. Pains in the head, running ears and abdominal symptoms should be promptly considered, as also accidents or swellings involving bones or joints. The latter often engender tuberculous "white swellings." All young structures are less firm, less organized and less vulnerable than those of the adult.

As soon as may be the child should be taught not to swallow its sputum or excreta from the upper air passages; these may be bacillus laden and may cause intestinal tuberculosis.

THE TELEPHONE AS AN ALCOHOLOMETER.

It is stated that M. Meneuvrier, assistant director of the Laboratory of Researches of the Paris Faculty of Sciences, has just discovered an infallible method of ascertaining by the use of the telephone how much a given quantity of wine has been watered. The principle on which the invention rests is the variable conductivity of different liquids.

The apparatus is described as follows: Two vessels, one containing wine known to be pure, the other the same quantity of wine to be tested, are placed on an instrument outwardly resembling a pair of scales. The telephone is in contact with both liquids. If the sample of wine under observation is as pure as the standard used for comparison no sound is heard; if, on the contrary, it contains water, the tell-tale telephone "speaks," and the greater the proportion of water the louder the instrument complains. A dial on which a number of figures are marked is connected with the telephone.

To ascertain the proportion of water in the wine tested, the operator moves a hand on the dial until the telephone, which has been "speaking" all this time, relapses into silence. The hand has thus been brought to a certain figure on the dial. This number is then looked up in a chart which the inventor has drawn up and corresponding to it is found indicated the exact proportion of water contained in the quantity of wine.

M. Meneuvrier's remarkable invention can, he says, be easily applied to the testing of many other liquids and even solids, which may be adulterated by the addition of foreign matter possessing a conductivity different from that of the original substance.

Small hospital wards are the latest features among the comforts and conveniences of the shops in a big city. In some of the shops there are trained nurses always in attendance, and in others perfectly equipped doctors' offices, where all sorts and kinds of ailments are treated, minor surgical operations performed, and in special emergency cases, future shoppers are assisted into the world amid surroundings eminently appropriate. It is not strange that there should also be adequate means provided to give assistance in cases of temporary and sudden illness or accident. This medical service is for the employes as well as for the patrons of the shop. The ordinary department store employs such large armies that it is possible to engage a physician to devote the whole or the greater part of his time to the work.

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Life is the model, truth is the master, the heart of the man himself is the motive power.—GARLAND.

THE TEMPERATURE AS A GUIDE IN VARIOUS DISEASED CONDITIONS OF THE BRAIN.

THE significance of the rise of temperature in disease of the cerebrum has been emphasized in recent years by Hale White, physician to the famous Guy's Hospital, London. Years ago he called attention to this symptom, which he has confirmed again and again in later publications. The thermogenetic tissues are properly the muscles, controlled by the corpus striatum; on the other hand, the thermolytic structures are principally the skin, where loss of heat occurs by radiation, by conduction and evaporation of moisture, and the mucous membrane of the respiratory tract similarly by conduction and evaporation of moisture. The vasomotor and sudorific centres in the medulla and cord are principally in control of this function. Physiologists of the day now connect these centres with a third centre—the "thermotaxic centre"—which has the important function of controlling heat producing and heat loss, so that the bodily temperature may remain equable under normal conditions. Probably this latter centre is located on the cortex of the brain.

In the *Journal of Physiology*, Vols. XI. and XII., White reported a series of experiments which he performed on rabbits. The normal rectal temperature of rabbits ranges between 101° and 103° F., and it was demonstrated that neither anesthesia, trephining, cutting the dura mater or passing a probe through the white matter of the brain altered this temperature range, but when the corpus striatum was injured considerable rise of temperature was noted, in some cases to above 106° F. White took next the central cortex, and found that there was generally a rise of rectal temperature when the cortex was destroyed. Experience has taught us that a tumor or hemorrhage of the pons varolii often leads to a rise of temperature, as do injuries of the upper portion of the spinal cord.

White has published in the "Guy's Hospital Reports" several cases where disease of the corpus striatum produced a rise of temperature. For example: Several cases of hemiplegia showed sudden rise of temperature, and at death softening of both corpora striata was detected, with nothing else to explain the pyrexia. From his cases White formulates the following points:

If only one corpus striatum is injured the temperature will be higher on the opposite side of the body. Thus, in hemiplegia, the temperature will be higher in the axilla on the affected side, although it is raised in both axillae. The probable explanation of this phenomenon is that the heat fibres from the corpus striatum decussate, as do the cortical motor fibres, and hence, owing to the damage done to the striated body, more heat is produced in the muscles on the opposite side of the body, while the blood circulating through these muscles is warmed, and raises in time the bodily temperature; but, of course, this rise is greatest at the source of the abnormal heat. In cerebral hemorrhage there may be considerable fall of temperature due to shock, but, as soon as this passes off, rise of temperature, due to damage to the striated body, will appear. In cases where there is sudden damage to the striated body the rise in temperature is equally sudden, usually attaining its maximum in twenty-four hours. When it returns to normal it usually becomes subnormal, falling to a degree below normal for a few days; then it returns to the normal standard.

As to pyrexia due to disease or disordered function of the cerebral cortex, several cases have been well authenticated. Colley, Goodhart, Jacobson and Golding-Bird have all reported instances of this sort.

Functional diseases of nervous origin may produce rise of temperature. For example: In epilepsy there is functional disturbance of certain portions of the cortex, and in cases of frequently recurring convulsions there is often rise of temperature. So it is in hysteria, the so-called "hysterical fever" of the French which always occurs in women, the temperature is erratic and often high, often varying at different parts of the body; the ratio of the pulse or respiration to the temperature is often perverted, and other signs of fever, such as hot skin, delirium, rigors, etc., are often absent, while antipyretics have very uncertain effect.

Where the alteration of the temperature is due to thermotaxic influences, and not to thermolytic or thermogenetic causes, there is great obscurity of symptoms; the rise of temperature bears no relation to the pulse or the respiration, implying that the amount of heat produced by the body is not correctly shown by the rise in temperature. This is peculiarly true in meningitis where the temperature is erratic. The fever here is not only due to suppuration, but to the fact that the meningeal inflammation upsets the thermotaxic nerve cells and

destroys the balance between the production and the loss of heat, just as it disorders the psychical functions and produces delirium. Certainly this theory helps to explain many puzzling and obscure clinical features in diseased brain conditions.

A PLEA FOR THE SUPERFICIAL STUDENT.

SOME pathologists and chemists are prone to condemn clinicians as superficial, and we have even known of cases in which the "pot called the kettle black." The charge of superficiality is easily made and easily substantiated if we adopt high enough standards for comparison. It is especially likely to be made of the man who, in medicine, attempts to apply scientific methods, for the sake of their practical results, to actual cases, or who, in other practical vocation, goes outside the beaten track of custom and yet does not wander off into the fields of pure speculation.

The expression superficial seems to be a survival of the centuries of agricultural life to which the race has been subjected. To get crops, to make a well, to build a fence, to lay a strong foundation, to get gravel, or stone, or coal, or mineral wealth, one must go beneath the surface. We have become so used to the reality that we accept the figure of speech as an unanswerable argument. But we are just on the eve of an endeavor to secure material prosperity, not by digging beneath the surface, but by flying above it. Digging, in and of itself, is not necessarily more profitable than work on or above the surface. Certain things in industry and science must be dug for, certain others must be sought on the surface, for certain others we must, reach upward.

It occurs to us that the world-old figure of speech of digging and of superficial searching has been over-used. Human effort accomplishes things mainly by a division of labor. The highly trained civilized white man has but a small percentage of brain substance over that of the lowest savage barely out of the stone age. Take the offspring of the former and place him in the surroundings of the latter, and he is simply a slightly superior savage. Reverse the experiment, and we often find that the very highest level of civilized intellignce has been reached at one bound. In other words, the individual human being does not really advance very much, but by concentrating his efforts along certain lines he progresses farther along those particular lines, and at odd moments he learns what his neighbors have discovered along other directions; or, at least, he receives the practical benefits of their discoveries.

In our opinion, when any man of recognized intelligence is industrious and is accomplishing results along a chosen line, he should not be reproached as being superficial simply because he does not attempt to do for himself every other man's work. The man who digs coal from a mine penetrates far beneath the surface; his work is of practical utility, but he may be no more industrious, no more valuable to society at large than the man who works on the surface, and his knowledge of this world and his scope of vision may be far less. Every worker, whether he be a digger, a surface worker or one who soars above the surface, is constantly coming in contact with fellow workers; he is constantly opening up problems which it is impossible for him to solve without distracting his attention from his own proper work and which he must simply refer to others for solution.

Somehow or other, the laboratory worker in medicine has become impressed with his own importance, which all are very willing to grant, but he seems, sometimes, to lose sight of the importance of the clinician, at least when he is on his feet in a meeting of medical men. When he is flat on his back, in his own room, it is very probable that the clinician appears to him as something more than a humble superficial explorer whose chief usefulness is to forward specimens to the laboratory and that the necropsy seems a far less desirable end of medical services.

One of the vulnerable spots in pathology is the fact that thus far, it has been almost entirely a young man's specialty. The medical profession, as a whole, has been disappointed in the careers of its rising young pathologists. One has risen to a high position and, after the ultimate promotion was reached, has transferred his energies to a practical medical specialty, another has opened up a new field of clinical pathology and left it, almost at the outskirts, for general medicine. Another has covered the whole subject in a masterly treatise and then has manifested his desire to follow it, not with a better pathology but with a text-book on practice. Another has apparently just failed to make an epochal discovery in parasitology and has made a flying leap to surgery. So, in the whole country, it would be difficult to find more than one man who has consistently and persistently confined his attention to pathology and who has reached an honorable and honored old age in that service. Fortunately, even this man is very far from the termination of his labors. Unfortunately, too, others of mature years have been removed by death long before the age at which we might accept their departure with resignation. It should also be said that there remain a considerable number of comparatively young pathologists who evince every intention of remaining so throughout their lives. Still, on the whole, the common experience has been that young men of ability who have come before the profession as pathologists, have been warmly welcomed, have secured positions of honor and of fair remuneration or who have been independent of their daily earnings, have not treated pathology as a serious life-work but merely as a stepping stone to medical or surgical practice.

Such desertions of a field in which honor has been won, is, of course, not at all to the discredit of any individual; neither is the fact that an important work is being carried on by young men rather than by old, any evidence to detract from the genuine value of the work. Yet the fact that pathology has been made merely a preliminary to practice and that pathologists represent, on the average, a junior branch of the medical profession, cannot but detract from the estimate in which the profession as a whole esteems it.

There, is, practically, a considerable difference between scientific pathology, bacteriology, chemistry, etc., and the same subects in their application to clinical medicine. First of all, the objective point is not the same; the scientist is searching after abstract truth and, as nearly as is humanly possible, for absolute accuracy; the clinician, on the other hand, has a definite, diagnostic, prognostic or therapeutic object. In so far as the microscopic examination of the blood or tissues, the excretions, transudates, exudates, etc., or the physical and chemical examination of the same or of toxic or therapeutic substances, leads directly to increased capacity for the successful management of medical cases, no trouble nor delay is too much to incur. When the problem ceases to be practical, either directly for a case in question or as leading to further knowledge which can be directly applied to future cases, it is not truly superficiality but a wise and necessary conservatism of time and energy that leads the clinician to cease his efforts in these directions. He certainly should be broad-minded enough to follow the scientific discoveries of the pure medical scientist in his reading and both clinician and laboratory workers should co-operate in research work for the ultimate advance of science and practice, the former by securing material for the researches of the latter, the latter by following up, even if not entirely as the result of his personal interests, the lines suggested by the practical experience of the latter.

The second important difference between clinical and scientific pathology, bacteriology—or parasitology in the broad sense—chemistry, etc., is the degree of accuracy and the minuteness of research methods sought. It is absolutely out of the question for a practicing physician to be at once a thorough pathologist, bacteriologist and chemist. It is equally impracticable, unless in certain official and institutional establishments, for the work of the clinician to be supplemented by a corps of scientific, laboratory workers. Some clinicians seek to acquire a reputation by occasionally selecting a case of unusual interest as one that can command considerable wealth, and "working up" this case by collaboration with scientific experts. Such a method is a mere gallery play for notoriety. The clinician who is entirely dependent upon his collaborators for such erudition is attempting to gain a reputation without earning it. His patients are, without realizing it, gambling as to whether or not their own cases will be thoroughly studied and there is an obvious ethical question involved in carrying out researches not especially indicated for the interests of the patient, simply because he can afford to pay for them.

In spite of all the scientific criticism that may be offered as to the approximate and brief tests of the clinician, there is a great advantage in the routine use of such tests by the latter and his regular assistants, over the separate clinical and scientific study of a case. A clinician who has no practical acquaintance with pathology, bacteriology and chemistry makes many blunders in turning over material for expert examination and often fails to appreciate fully the practical significance of the techniquical reports which he receives. Neither is the strictly scientific specialist always competent to direct his investigations so as to derive the greatest practical value from his tests. It is only when clinical and scientific knowledge come together in the same individual that the best practical results are obtained. There are, of course, many cases in which special investigations of great complexity and entirely beyond the power of the clinician, are indicated. But such investigations have a greatly increased practical value if they are part of a series of approximate, clinical investigations rather than isolated ones.

What is needed is greater familiarity with scientific possibilities by clinicians and greater familiarity with clinical diseases by laboratory workers. Practically all laboratory methods may be adapted to the approximate needs of the clinician and his limited facilities and leisure. Conversely, laboratory studies along the lines of pathology, parasitology and chemistry should be more closely in touch with clinical knowledge and aspiration not only for the sake of effecting more immediately practical results but because they may thus be carried out with a clearer conception of the nature of the processes in question.

At the Close of the Session [A. M. A.], Myashima, who is representing the Imperial Japanese Institute for Infectious Diseases, of Tokio, at St. Louis, presented, upon invitation, some very remarkable drawings and specimens and read an important contribution to our knowledge of malaria. The only type of malaria encountered in Japan is the tertian form; there is also but one species of anopheles to be found there. But in Formosa several of the types of malaria are seen, among them the estivoautumnal form, and cases of this disease are constantly being imported into Japan from Formosa, yet no cases are seen except in patients who have contracted the disease in Formosa. The conclusion is drawn that the species of anopheles which occurs in Japan is able to transmit the parasite of tertian fever, but not the form which causes the malignant type: in other words, a given species of mosquito may be able to harbor the plasmodium of only one form of malaria, and be immune to the other forms of plasmodiums.

"MATTER IS ELECTRICITY."

SINCE, probably, many generations before Pythagoras and Thales thinking men have reasoned concerning the nature of matter. Up to within a few years ago as satisfactory a solution of the problem as any was offered by *Punch:* "What is mind? no matter. What is matter? Never mind. What is spirit? It is immaterial." This system of philosophy, while not very conclusive, was yet a comfortable one; and it summed up fairly well the results of the deliberations of many centuries. However, Sir Oliver Lodge, in a paper in the August *Harper's,* now declares that matter is electricity and nothing else. And addresses of associate scientists who have just visited this country (particularly Sir William Ramsay), lend emphasis to this undoubtedly important paper. It is declared that electricity is not a form of energy, any more than is water. Water may be a vehicle of energy when in motion or at a high level; so may the former. Electricity cannot be manufactured as heat can; it can only be moved from place to place, like water, and its energy must be in the form of motion or of strain. Under strain it constitutes charge; in locomotion it constitutes a current and magnetism; in vibration it constitutes light.

We do not know what positive electricity is. Lodge does not even guess, beyond supposing it to be a mode of manifestation, or a differentiated portion of the continuous and all-pervading ether. Much, however, is known concerning negative electricity; this exists in very minute particles, or "electrons." Each electron has a definite charge of electricity—the same charge as is conveyed by each single atom when a current is passed through a chemically conducting liquid. Each electron has also a definite and uniform mass, which is about 1-800th of that of an atom of hydrogen—the lightest form of matter hitherto known. From every kind of material the same and no other kind of electron can be obtained, "and we have reason for asserting that no other kind exists."

Inside a hydrogen atom electrons are very sparsely distributed—there is plenty of room for 800; more room, indeed, than there is in the solar system for the sun and planets. Some atoms, however, contain many more than this number; the tightest packing known exists in the atoms of the radio-active substances, Uranium, Radium, and the like, each atom of which contains something like 200,000 electrons. Lodge's view of an atom of matter is therefore somewhat like the following: Imagine an individualized mass of positive electricity, diffused uniformly over a space as big as an atom, "or such that a million, million, million, million could be crowded tightly together into an apothecary's grain." Then imagine, disseminated through this small spherical region, a number of minute specks of negative electricity, all exactly alike and all flying about vigorously, each of them repelling every other, but all attracted and kept in their orbits by the mass of positive electricity in which they are imbedded, and flying about. The electrons are very energetic and forcible, though in bulk mere specks or centres of force. Every speck is exactly like every other, each being of the size and weight appropriate to the electron. *"Different atoms, that is, atoms of different kinds of matter, are all believed to be composed in the same sort of way;"* but if the atoms of a substance are such that each possesses twenty-three times as many electrons as hydrogen has, we call it sodium; if 200 times as many we call it lead or mercury; if still more than that, it begins to be conspicuously radio-active. Matter, then, appears to Lodge to be composed of positive and negative electricity and nothing else. All new-discovered, as well as all long-known properties of matter can thus be explained. The only remaining enigma is gravitation, of which no satisfactory theory is as yet forthcoming. Possibly this property is a slight but quite uniform secondary or residual effect due to the immersion of a negative electron in a positive atmosphere. It is a mutual force between one atomic system and another, which is proportional to the number of electrons in each.

Possibly Lodge and his associate scientists have grasped a true theory of matter; if so, the world is on the threshold of discoveries more wonderful than have yet been achieved in history.

THE THEORY AND PRACTICE OF IMMUNITY.

Professor Wasserman, of Berlin, lectured upon this subject before the New York Pathological Society on September 28, 1904. It is a subject as involved and as full of difficulties as it is important. Professor Wasserman's exposition (in German) was declared by hearers of unquestionable veracity to be lucid. All the same the appearance of the author's abstract in the *New York Medical Journal* of the same week is cordially appreciated.

For an understanding of the theoretical and scientific aspects Ehrlich's "side-chain" theory is essential, according to which the specific substances developed in the serum by immunization are nothing else than those portions of the cells of the living organism for which the substances against which we immunize possess a specific affinity. The same substance produced, for example, by tetanus toxine when this gains access to the central nervous system, neutralizes the tetanus poison and so protects this system while circulating outside of it in the blood. Here the affinity of the tetanus poison is reached before it encounters the susceptible tissue. "Receptors" are those portions in the organism for which a substance possesses such specific relations as these. Wasserman explains the process as follows: "The substance is first bound to the organ; as a result of this binding, in accordance with Weigert's law, an overproduction of the receptors ensues; the receptors thus produced in excess the organ thrusts off into the blood as superfluous." There are then three stages, which Wasserman has succeeded in demonstrating: The union of toxin and receptor; the increase of the re-

ceptors; the thrusting off of these overproduced receptors into the blood. He employed a tetanus poison which had become so weak as to be no longer toxic. An animal was injected with this non-poisonous "toxoid," and a short time later with fully virulent tetanus toxine; it was then found that more tetanus toxine was necessary to kill this animal than to kill a normal one. This was because by means of the previous injection of toxoid, part of the receptors had already been occupied. When, in this experiment, several hours (one to three) were allowed to elapse after the injection of the toxoid, it was found that now less tetanus toxine was required to kill the animals than it required for normal animals; for in this case, in conformity to the theory, an increase of the receptors (the susceptible portions of the central nervous system) had taken place as the result of the previous binding.

The lecturer next discussed the action of antitoxins on toxins. Attempts have of late been made to apply to these substances the doctrines of physical chemistry and of the dissociation of solutions. Wasserman has shown in the living organism that in this action several stages can be distinguished. In the first stage there ensues between toxine and antitoxine a loose combination, which gradually and steadily becomes firmer. Experiment: Tetanus toxine is absorbed by the organism through the nerves and not by way of the blood (serum); the antitoxine exclusively through the blood. If tetanus toxine and tetanus antitoxine are mixed in a flask, and if the mixture is injected into the hind paw of a guinea pig, the animal will remain free from tetanus. If, however, the same experiment is made on a guinea pig whose hind paw has shortly before been injected with adrenalin, so that the capillaries are contracted, the injection of the same mixture which was innocuous to the normal animal will cause tetanus in this adrenalin guinea pig. This is because the adrenalin has blocked the path through which the antitoxine can be absorbed, whereas the nerve-path, for the toxine, is left open. The toxine, therefore, tears itself loose from the antitoxine, follows its path of absorption to the central nervous system, and causes tetanus. This experiment, however, succeeds only when not too long a time (not over an hour) has elapsed after making the mixture of toxine and antitoxine. Otherwise tetanus will not be produced even in the adrenalin animal; for after a longer time the combination of the two substances has become very firm. The action of antitoxine upon toxine is therefore in effect a purely chemical affinity which increases in time.

Wasserman very rightly emphasized the practical aspects of immunity. It is important to produce "polyvalent" or "multipartial" sera. In Ehrlich's theory it is held that every single part of a body against which we can immunize corresponds to a specific counter-group, the receptor of the living organism. Now, the body of certain bacterial species is not a simple homogeneous mass, but is composed of several parts. Corresponding to these the serum is made up of the sum of the "partial" elements. In certain species (the streptococcus, the bacterium coli, etc.), these "partial" elements may fluctuate individually; that is, there are races which biologically are differently constituted from other races of the same species. So that when an animal is immunized with a single culture of this bacterial species, a serum is obtained which acts practically on only this particular culture—not on all. Therefore in practice such sera must be made by means of a large number of cultures of the bacterial species in question; thus by obtaining "partial" elements, multipartial sera are made, which act on all, or on most cultures of the bacterial species in question. Such behavior is observed in a new diphtheria serum, which is purely antitoxine, acting only on the poison secreted by the diphtheria bacilli. Wasserman's serum affects also these bacilli themselves, or at least, substances present in them.

This serum is considered to cause the diphtheria bacilli (which often remains for weeks after the subsidence of the symptoms) to disappear more rapidly from the throats of convalescents and healthy children. For this purpose the serum is dried *in vacuo*, pulverized, insufflated into the nose in cases of nasal diphtheria, or formed into pastilles for the throat. The diphtheria bacilli in the naso-pharyngeal cavity are agglutinated. After this has occurred, the upper air passages are rinsed out with an indifferent fluid, by which the bacilli clumped together are removed. There have thus far been very favorable clinical results.

Quite certain is it that there is now no subject of greater importance than this of immunity before the profession to-day. These are pertinent reflections constantly arising in the mind of the practitioner: Why is is it that the aged so seldom suffer from infectious diseases; does not their immunity depend in great measure upon previous maladies and vaccinations?
Does not the same reasoning, on the other hand, explain the frequency with which the young contract infections? Why is it that many infections are generally visited upon an individual but once; is it not because each infectious disease evolves its own antitoxine or antidote to its own poison? Why is it that oftentimes the children of tuberculous parents are remarkably free from this disease; is it not because in utero, some immunized property has been transmitted to them? Medicine has no more important matter to consider than such as these.

To return to Dr. Wasserman's lecture: This reviewer had the good fortune to sit next an amiable and very enthusiastic colleague, who confided that he had for several weeks carried about with him a German sentence composed by the eloquent lecturer. This sentence was a source of unfailing satisfaction to the amiable and enthusiastic colleague. In moments of sadness and difficulty he was comforted by examining it, on the same principle that tight boots are a luxury, in that they make you forget all your other miseries. For the giving of innocuous and lasting recreation it utterly eclipsed all memory of the fifteen puzzle. It was as wholesome and as fundamentally satisfying to have in one's pocket as a souvenir of a good and beautiful woman, in that it connoted the properties of inscrutableness and uncertainty, such as are attributes of the feminine nature. There was, however, but one drawback to the happiness of the amiable and enthusiastic colleague; he feared, with much misgiving, the time which might come when the meaning of this sentence would become obvious. How blank and joyless the future would be—how hopelessly ennuyé after the many athletic and strenuous days devoted to the solution of this enigma!

Professor Niels R. Finsen, of Copenhagen, author of "The Influence of Light on the Skin," and a most famous discoverer in photo-therapy, died of heart disease at the age of 43.

X-RAY WARNINGS.

The results of X-ray work are, of course, beneficial in the main; nevertheless these are sometimes untoward and of a sort not intended or anticipated by the physician. Malpractice suits in this regard have become of rather uncomfortably frequent report, and sometimes death seems to have been the result of undue subjection to the X-ray; an assistant in the Edison Laboratory in New Jersey recently died from such burning.

In order to protect himself, the physician must recognize that X-ray effects are cumulative, day by day. The danger to the operator increases, moreover, in a compound multiple ratio, with nearness to the tube; with the number, frequency and duration of exposures; size, hardness and degree of excitement of the tube; with poor bodily condition; when there is a traumatism of whatever nature; with the number of previous attacks, each attack leaving the operator more vulnerable. Collapsing of tubes, with cutting off of the flesh by flying fragments, is always a possibility. Conversely, the danger decreases with the distance from the tube; infrequent and short exposures; the softness of the tube, provided it is under-excited; the interposition of such substances as clothing, screens of copper, iron, tin, zinc, aluminum and glass plate, depending upon their density, thickness and other qualities as yet unknown; vigorous bodily condition, and a position behind the target and static machines.

Dr. J. T. Pitkin, of Philadelphia, in whose paper read before the American Roentgen-Ray Society we find these valuable data, declares that at first the operator is injured without premonition. After a time there is a slight change in the color of the hands and face with subsequent swelling; then a few pruritic papules or pustules, with bran-like scales; there may be alopecia. Upon continued exposure there will be "itching warmth, local diaphoresis, cutis anserina," a glossy appearance of the parts and subcutaneous odema. Later the skin becomes rough, dry and discolored. Upon further exposure there is a stage of chronic inflammation and disintegration; intense itching, with successive crops of papules, etc.; the skin becomes honeycombed with small ulcers which may become confluent, with sanious offensive discharge. Muscle action becomes inhibited. There is intense suffering. The processes of repair are indolent and ineffectual, recovery being a matter of months.

Among the sequelae of X-ray inflammation are: Loss of skin, with the appendages; disfigurement of the parts involved—scars, pits, pigmentation, especially small cicatrices, drawing the angles of the mouth downward, "giving the operator a sad expression;" chronic skin diseases resulting from loss of sebaceous and sweat glands; hyperaesthesia to all forms of radiant energy; anaesthesia in circumscribed regions; increased vasomotor activity; decreased sexual activity; impairment of vision, etc.

Among precautions to be taken by the operator are the following: Never change adjustments or the patient's position during operation, or use the hand in front of the fluoroscope as an X-radiometer; never let the strong destructive rays in the centre of the fluid shine upon the person; never excite the tube with a sinusoidal current or overload the direct current with the spark gaps (thus changing it into the sinusoidal). The *Cincinnati Lancet-Clinic* (October 8, 1904) further advises the wearing of X-ray gloves (such as are invented by Dr. Price, of Cleveland); silk or rubber gloves, lined with foil, are better than none. The sleeves of the office coat should be long enough to cover the backs of the hands; the hips should be well covered; the coat should be entirely lined with foil or the Price material. The operator should remain behind the target —at least as far away from the excited tube as possible. After necessary manipulations, he should return at once to a position of safety.

TO THOSE ABOUT TO STUDY MEDICINE—DON'T.

After an examination of a document prepared by the Executive Committee of the National Medical Association of Germany, we are quite prepared to offer the above pharapharsis of *Punch's* advice to those about to marry. This document is really in effect an official appeal to the graduates of the 482 gymnasia and 131 Realschulen of the empire, not to enter upon the study of medicine, the chief reason given being the deplorable financial condition of an exceedingly large percentage of physicians. This advice is based upon the facts: That there is in Germany a surplus of medical men far in excess of the demand; that laws against practice by the incompetent have been abrogated; that legislation for the *Kraukenkasse* has diminished the incomes of physicians.

In 1876 there were 17,728 physicians in Germany; in 1902 there were nearly 30,000. And the "learned proletariat" is bound to grow, for now women and the graduates of the semi-classical Realgymnasia are being admitted to the profession. Besides the reasons thus advanced is the fact that the addition of a practical year to the course has made the expenses of preparation, already very costly, still more so. We will not consume space in an exposition of similar conditions which obtain in this country; why should we? Aren't we all of us familiar with them?

SEX CONTROL.

Professor Loeb, of Chicago, reopened an old discussion in a section of The International Congress of Arts and Sciences at St. Louis by declaring that biologists are now sufficiently advanced in their science to be able to control the sex of newly formed cells, and to declare to which sex the newly generated body shall belong.

In the same meeting Dr. Coulter, an associate of Professor Loeb, declared that cell protoplasm and cell life are influenced by the conditions and forces which exist about and are correlated to the cell. This latter statement is true not only for the cell but for the whole organism as well. The physician should constantly take this into consideration. It is not sufficiently appreciated that in large measure living is response to stimuli, either physical or chemical, from without the organism; that disease is oftentimes the result of a vicious environment. The well-merited reputation of Professor Loeb entitles him to have his opinion set forth. However, most men and women will continue to entrust the sex selection of their offspring to a wise and beneficent Providence, which most graciously sees to it that there is always a numerical preponderance of the most winsome and the most heart-rejoicing of sexes. Why should "mere men" seek to improve perfection?

THE STOMACH.

Dr. Max Einhorn divides diseases of this organ into two classes.

1. Structural, in which some such distinct anatomical lesion as an ulcer or a cancer or a stricture of the oesophagus must be dealt with.

2. Diseases in which there is no such lesion. Of these there are two sorts:

a. The neuroses. Here the main element is the condition of the general nervous system. The psychic state will, no doubt, furnish a clue upon which to base treatment. Many of these cases form the marvelous cures of Christian Scientists, *et alii.* If there is no structural lesion (no stricture of the oesophagus, etc.), and if nausea and vomiting come on immediately after eating, there is probably a neurosis at bottom.

b. Functional disorders. Here, while there may be a nervous element it will not preponderate. There are various tests to determine the nature of these functional disorders.

MEDICAL TREATMENT OF GYNECOLOGICAL CASES.

The past fifteen years has shown such progress in surgery that for a time the medical aspect of many classes of cases was largely lost in the dust cast up by the wheels of the chariots of the up-to-date surgeon. Especially has this been true in gynecology. There are gynecologists who look with respect only on the knife and whose only drug is a can of ether. The pendulum ever swings, however, and now is dawning the day when medical treatment, even in surgical cases, is beginning to loom large again.

The medical man is often surprised to see the results which can be obtained by judicious treatment. He knows that by preliminary treatment an operation is often greatly simplified and the prospects of a cure greatly increased where more careful attention is given to preparing parts for the operation. We must remember that asepsis or antisepsis is not the alpha and omega; the condition of a tissue may not permit a rapid cure or ready union. Where there is no need of haste, preparatory treatment will always give better results. For example: in laceration of the cervix, where the condition has lasted for a long period, the pathological lesion may have changed the tissues around the cervix so that good union may be impossible. Where the cervix is hard, enlarged and deep blue or purple, the uterus enlarged and tender, the prospects are not assuring. Local treatment will reduce the size of the uterus and cervix, removing the tenderness and the enlarged Nabothian cysts.

So it is in many other conditions. It is folly to rush into an operation without careful thought and preparation. Nature still has a special care over her own, and the physician must not forget this all-important fact, even when confronted with imposing rows of figures and statistics from the case books of the modern surgeon.

The Executive Committee of the International Sanitary Congress, which has been ordered to convene at Milan, in 1906, has appointed a special committee for the subject of tuberculosis. It has been subdivided into five sections, one each for the diffusion, etiology, prophylaxis, institutions for prophylactic aid and legislation in regard to tuberculosis from the sanitary and social points of view.

THE TENEMENT HOUSE DEPARTMENT.

The first report of the New York Tenement House Department—a substantial work of two volumes—is of unusual interest. It covers the eighteen months beginning January 1, 1902. This work, directed by Commissioner Robert W. De Forest, is the outcome of the legislation proposed by the New York State Commission of 1900, which was aimed at a more radical treatment of the tenement house problem than had theretofore been attempted. The Tenement House Act was by no means a mere extension of principles embodied in existing legislation. It was new in spirit and purpose, and had for its object the improvement of the moral as well as the physical environment of the tenement's population. It provided for the suppression of prostitution in tenements; and only the citizen familiar with municipal conditions for a decade past can know what this means. Besides, the Act raised the standard of future building construction, and called for the alteration of unsanitary houses erected under former lax rules. The functions entrusted to this new department were extremely varied and extensive. They included supervision of all tenement building operations, compelling alterations in 40,000 unsanitary structures. There were, to begin with, 82,000 inspections to be made. Every tenement house in the city was to be inspected once a year, while houses in which the apartments averaged a rental below $25 a month were to be investigated monthly.

The department was clothed with ample powers, as was essential in the interests of the health of humanity's submerged strata in this community. It can at once and peremptorily stop work on new buildings and vacate old ones. No new tenement can be occupied without its permit. All owners (or their responsible agents) must report their names and addresses, and certain other information, to the department's registrar. It may enter the private apartments of two-thirds of this city's population. It has a force of 400 employees and a budget of half a million dollars.

The part of the report which describes the organization of the department and its methods of work is very interesting, if for no other reason than that the system instituted by Mr. De Forest and his colleagues makes evident the practical impossibility of blackmail by their subordinates. Such excellent workers as Lawrence Veiller, the leading expert on housing reform in the United States; Webster C. Bush, former Commissioner of Buildings in Brooklyn; Charles B. Ball, former Chief Inspector of Plumbing in the District of Columbia; Prof. Wm. R. Patterson, former Statistician of the State Board of Control of Iowa, and Miss Kate H. Claghorn, of the Federal Census, were Mr. De Forest's associates.

The work of the department has been excellent in every conceivable way. And the public has evidently been convinced of this. For subsequent attempts to emasculate the Tenement House Act in the Legislature have aroused spontaneous and altogether effective protests from every honest quarter.

The thousand odd photographs taken by this department, many of which are shown in this report, reproduce the ghastly conditions in which many a wretched family was situated: For instance, air shafts 12 inches wide and six stories deep (there were 361,000 "dark rooms," whose only means of ventilation, when there was any ventilation at all, was through such air shafts); children's playgrounds adjacent to water closets, and the like. And the pictures showing the condition of

things after the department's activity are in the reverse degree most gratifying.

THE FIGHT AGAINST TUBERCULOSIS.

The National Association for the Study and Prevention of Tuberculosis, which was organized in Atlantic City on June 6, has secured offices in the Associated Charities Building on Twenty-second street in New York City. An executive secretary will be elected in September; in the meantime Mrs. Florence F. Colby has been made assistant secretary to start the work.

It is hoped that at least $50,000 can be raised yearly to carry on this crusade, which is to be mainly one of education. No sanatoria, hospitals, dispensaries or laboratories will be founded—at least, none are contemplated at this time.

It is planned to collect and disseminate information of every sort touching upon tuberculosis. Statistics will be collected and pressed on the attention of municipal bodies and institutions in order to get them to make scientific warfare against the spread of the infection. The association headquarters are to be made a clearing house for tuberculosis knowledge. Local associations and committees will also be encouraged and assisted in every conceivable way. It is probable that a special journal devoted to tuberculosis will be published; but this point is not quite decided.

A tuberculosis directory will be published. This will be done in co-operation with the Charity Organization Society, whose statistician, Miss Lillian Brandt, has already in hand a great deal of such information, including particulars of 125 tuberculosis hospitals and sanatoria in this country and Canada.

MENTAL TELEPATHY.

Among the many arguments for and against the possibility of psychic manifestation through space is the following, which belongs to the latter category: The possibility of thought transmission by supersensory methods has never been demonstrated; it is impossible, if we consider the only conceivable means by which thought is generated. Thought is a mental emanation. Mind is admittedly not brain; the terms are not synonymous. But it is certain that mind cannot be manifested except by means of the material, physical brain. Thought is a mental product resulting from the energy which is inherent in the material brain. Therefore, this product thought, dependent as it is for its evolution upon the force or power inherent in a material substance, can only be disseminated in obedience to the law which invariably governs all forms of material energy—in inverse ratio as the square of a distance. Under these circumstances we may comprehend how there may be thought transmission, say from the next room. But with increased distance it must be manifested less and less. So that such telepathy from great distances, as from the antipodes, as has been claimed, is hardly to be conceived.

Dr. Kenneth W. Millican, late the accomplished associate Editor of the New York *Medical Journal*, has been appointed editor of the St. Louis *Medical Review*, a weekly journal of medicine and surgery. The profession of Missouri are to be congratulated upon their being able to secure so able a writer, experienced editor, and conscientious gentleman. Our best wishes, Brother Millican.

BIBLIOGRAPHICAL

A System of Practical Surgery.—Drs. E. Von Bergmann, of Berlin, P. Von Bruns, of Tübingen and J. Von Mikulicz, of Breslau. Edited by William T. Bull, M.D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University), New York. Sold by subscription only. Per volume, cloth, $6.00; leather, $7.00; half morocco, $8.50, net. Volume V. 789 pp., 354 engravings, 23 plates. Lea Brothers & Co., Philadelphia and New York.

This volume completes a most important System of Surgery, based upon the second German edition, carefully revised and brought thoroughly up to date. The translation and revision has been done by Dr. Bull and his collaborators with great fidelity and thoroughness. They have brought to their work not only enthusiasm and faithful effort, but also a wide surgical experience which enabled them to add judicious and helpful references to methods of practice which have gained the preference of English and American surgeons. The work is encyclopedic in character, many of its chapters exceeding in scope and detail special treatises which have been published on their subjects.

The complete work comprises five very handsome octavo volumes, containing 4,220 pages, 1,976 engravings and 102 full-page plates in colors and monochrome. The great value of the work lies in its practical and clinical character. This is supported by an abundance of pathological data, details of original research, and statistical facts which render the work of inestimable value to the student, the surgeon and the general practitioner. These volumes constitute a complete working library of surgery, and modern progress is so rapid and so solidly founded, that every surgeon, as well as every physician who has occasional surgery to perform, owes it to himself and to his patients to add this work to his shelves.

A Text-Book of Clinical Diagnosis.—By Laboratory Methods. For the use of Students, Practitioners, and Laboratory Workers. By L. Napoleon Boston, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories of the Medico-Chirurgical College, Philadelphia; formerly Bacteriologist at the Philadelphia Hospital and at the Ayer Clinical Laboratory of the Pennsylvania Hospital. Octavo, 547 pp., with 320 illustrations, many of them in colors. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $4.00, net; sheep or half morocco, $5.00, net.

The author presents a practical manual of those clinical laboratory methods which furnish a guide to correct diagnosis, giving only such methods as can be carried out by the busy practitioner in his office as well as by the student in the laboratory. He has given special attention to outlining in progressive steps the various procedures in clinical technic, such steps being illustrated whenever possible. All the more recent methods for the examination and staining of blood are described and illustrated by original drawings, and the subject of Serum-Diagnosis is carefully considered. The newer methods for the estimation of Sugar, Bence-Jones' Albumin, Uric Acid, and Purin have received suitable consideration. The subjects of Animal Parasites, Diseases of the Skin, Transudates and Exudates, and Secretions of the Eye and Ear are well stated. Attention

has also been paid to Inoscopy and Cyto-diagnosis. The book contains much useful material, and being the latest of its class, includes the most recent advances along its line.

Examination of the Urine.—By G. A. De Santos Saxe, M.D., Pathologist to the Columbus Hospital, New York City. 12mo, 391 pp., fully illustrated, including 8 colored plates. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Flexible leather, $1.50, net.

The author has presented a work on examination of the urine unusually complete, absolutely up to date, concise, yet explicit in all its parts; and it will be found to meet fully the requirements of the student and practitioner without burdening him with unnecessary analytic procedures. Special attention has been paid to the important and practical point of interpretation of findings as applied to clinical diagnosis, and the student is told what each chemical element and each microscopic structure means when found in the urine. The character of the urine in various diseases is also described in detail. Descriptions of technic have been made very explicit, and the author has inserted some new methods of working developed in his own experience. Cryoscopy and other means of functional diagnosis have been given their proper places. The text is fully illustrated, including eight colored plates of the various urinary crystals.

Saunder's Question Compend: Essentials of Chemistry, Organic and Inorganic.—Containing also questions on Medical Physics, Chemical Philosophy, Medical Processes, Toxicology, etc. By Lawrence Wolff, M.D., formerly Demonstrator of Chemistry at the Jefferson Medical College, Philadelphia. *Sixth Edition. Thoroughly Revised.* By A. Ferree Witmer, Ph.G., formerly Assistant Demonstrator in Physiology at the University of Pennsylvania. 12mo, 225 pp., fully illustrated. Philadelphia, New York, London: W. B. Saunders & Co., 1904. Cloth, $1.00, net.

We need but mention the fact that this little work has reached its sixth edition to prove beyond question its practical usefulness. The recent important discoveries in physics and inorganic chemistry have rendered it necessary, in this revision, to make extensive additions and changes. The subject of organic chemistry, especially organotherapy and the substituted ammonias, has also been carefully revised and much new matter added. The book is excellent.

Nervous and Mental Diseases.—A Manual for Students and Physicians. By Joseph Darwin Nagel, M.D., Consulting Physician to the French Hospital, New York. 12mo, 276 pp., with 46 illustrations. Cloth, $1.00, net. Lea Brothers & Co., Philadelphia and New York, 1904.

This little volume is a combination of brevity, clearness and comprehensiveness, which cannot fail to be of service to students and to practitioners, for a hasty glance.

A Text-Book of Human Histology.—Including Microscopic Technic. By Drs. A. A. Böhm, and M. Von Davidoff, of Munich, and C. Carl Huber, M.D., Professor of Histology and Embryology in the University of Michigan, Ann Arbor. *Second Edition, Thoroughly Revised and Enlarged.* Handsome octavo of 525 pp., with 376 original illustrations. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Flexible cloth, $3.50, net.

This work of Drs. Böhm and Davidoff is well known in the German edition, and is considered one of the most practically useful books on the subject ever written. Dr. Huber in editing the American edition has added much useful matter, the practical results of his own extensive experience in histologic endeavor. The new second edition has been in large part reset, all the newest methods of technic being incorporated. For convenience in the laboratory it has been bound in flexible cloth.

Text-Book of Nervous Diseases and Psychiatry.—For the use of Students and Practitioners of Medicine. By Charles L. Dana, A.M., M.D., Professor of Nervous Diseases and (an interim) of Mental Diseases in Cornell University Medical College; Visiting Physician to Bellevue Hospital; Neurologist to the Montefiore Hospital, etc., etc. Sixth Revised and Enlarged Edition. Illustrated by 244 Engravings and Three Plates in black and colors. 690 octavo pp. Price, $4.00. New York: William Wood & Co., 1904.

This classic work has gone beyond the province of the reviewer, and we have only to announce that the present edition has been brought to date. There has been a chapter added on psychological terms. Some new cuts appear, and there are slight corrections in the text. There is little change in the chapters on nervous diseases, however.

The most important addition to neurology of late is that of cyto-diagnosis, which is discussed.

The subject of "special therapeutics" has been curtailed in the interest of space.

The book must still continue as one of our most popular text-books for students and practitioners.

How to Cook for the Sick and Convalescent.—Arranged for the Physician, Trained Nurse and Home Use. By Helena V. Sachse. Second Edition, Revised and Enlarged. Philadelphia: J. B. Lippincott Co., 1904. 12mo, 297 pp.

This little volume is an attempt to place the preparation of food on an accurate basis in the interest of individualization, and it will be found a distinct help to the dietitian.

Lectures to General Practitioners on the Diseases of the Stomach and Intestines as well as the Allied and Resultant Conditions with Modern Methods of Diagnosis and Treatment. By Boardman Reed, M.D., Professor of Diseases of the Gastrointestinal Tract, Hygiene and Climatology in the Department of Medicine of Temple College, Philadelphia; Attending Physician to the Samaritan Hospital; Member of the American Medical Association, American Climatological Association, American Academy of Medicine, American Electro-Therapeutic Association; Foreign Member of the French Société d'Electrotherapie, etc. Illustrated. New York: E. B. Treat & Co. 1024 octavo pp. Price, $5.00.

This volume embraces a full account of the simplest and least disturbing methods of determining the character of the motor secretory and excretory work of the principal organs having a part in the processes of digestion and metabolism, by examinations of the stomach contents, feces, blood, urine, etc.; together with a full exposition of the subject of diet and the therapeutics of the digestive disorders in general, including indications for the various forms of electricity, X-rays, massage, vibratory stimulation, hydrotherapy, gymnastics, liquid medication, medical and surgical treatment, etc.,

in addition to "The Gastrointestinal Clinic" in which the diagnosis and treatment of all the known diseases of the tract are separately considered.

The author has had large experience and is well equipped in every particular for his efforts, so that he has produced a practical treatise suited to every-day use. His work is especially adapted to the needs of the general practitioner. Appendicitis is discussed from both the medical and the surgical point of view; the technic of the injection method of treating hemorrhoids is given, and the treatment of constipation and chronic diarrhea includes new and effective methods.

The subject of intestinal catarrh comes in for a full consideration and new and promising methods of treatment are explained and illustrated. There are lectures on movable kidney, dysentery, bacteria, and animal parasites in the intestinal tract of great practical value. The section entitled "A Symptomatic Guide to Diagnosis," is a feature which will commend itself to the practitioner, because it enables him to trace any obscure or puzzling symptom to its possible cause, in the interest of diagnosis. The text is written in plain, simple language, easily understood, fully illustrated and indexed. The up-to-date practitioner will find this book just what he requires.

Progressive Medicine, Vol. III., September, 1904.—A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Armory Hare, M.D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 284 pages, 19 illustrations. Per annum, in four cloth-bound volumes, $9.00; in paper binding, $6.00, carriage paid to any address. Lea Brothers & Co., Philadelphia and New York.

The character of this quarterly is already well known. It has aimed to combine a thorough and scientific spirit, such as animates the best of the European publications, with an enjoyable and readable manner of presentation.

The September issue contains four subdivisions: Diseases of the Thorax, Dermatology, Obstetrics and Nervous Diseases. To one who has followed these subjects with any degree of attention during the past year it is a perfectly evident fact that notable advances have been accomplished. The physical methods in the treatment of disease—balneotherapy, radiotherapy, actinotherapy and massage; the sociological side of the infective diseases, especially tuberculosis; the etiology of many hitherto obscure conditions, such as eclampsia, diagnosis, both by means of the old and by the newly-introduced physical methods; improvements in therapy in all its innumerable applications—such are certain of the most important aspects of the progress which has been made during the preceding year.

A Treatise on Obstetrics.—For Students and Practitioners. By Edward P. Davis, A.M., M.D., Professor of Obstetrics in Jefferson Medical College; Professor of Obstetrics and Pediatrics in the Philadelphia Polyclinic, etc. Second edition, thoroughly revised and much enlarged. Octavo, 800 pages, with 274 engravings and 39 full-page plates in colors and monochrome. Cloth, $5.00, net; leather, $6.00, net. Lea Brothers & Co., Philadelphia and New York.

This eminently practical, scientific and brilliant treatise is in its second edition. The author's method is both original and comprehensive and the scope of his work includes cognate subjects of importance, not usually met with.

The book has been entirely rewritten, and 250 pages added, covering the latest literature of the subject. The illustrations, which are abundant and instructive, have been also revised and some replaced. The work should be placed in the front rank of its specialty.

Annual Report of the Board of Health of the Department of Health of the City of New York for the year ending December 31, 1902.

A Text-Book of Physiological Chemistry.—For Students and Practitioners of Medicine. By Charles E. Simon, M.D., late Resident Physician, Johns Hopkins Hospital; author of "Simon's Clinical Diagnosis," etc. New (2d) edition. Revised and enlarged. Octavo, 500 pages. Cloth, $3.25, net. Lea Brothers & Co., Philadelphia and New York.

This excellent book has been brought to date in a second edition. The chapters on the Albumens, on the Products of Nitrogenous Katabolism, on Gastric and Tryptic Digestion, have been practically rewritten. An appendix of laboratory exercises has been added, with references to the text, in the interest of the instructor. The methods are described in such detail that the student can easily master them. We have no hesitation in commending this book to students, and to general practitioners who desire to brush up in chemistry.

Regional Minor Surgery.—By George Gray Van Schaick, M.D., Consulting Surgeon to French Hospital, N. Y. Second Edition, enlarged and revised, 228 pages, bound in cloth, profusely illustrated. Price, $1.50. International Journal of Surgery Co., N. Y.

This little book describes the treatment of those conditions daily encountered by the general practitioner, and will be found of great service. The second edition has been promptly called for, and it shows revision and additions. The book seems to fill a popular demand.

Kirke's Hand-Book of Physiology.—Revised by Frederick C. Busch, B.S., M.D., Professor of Physiology, Medical Department, University of Buffalo. Fifth American Revision with five hundred and thirty-five illustrations, including many in colors. New York: William Wood & Co., 1904. Octavo, 862 pp.

This well-known book, now in its fifth edition, has been brought thoroughly to date by revision, and improved by condensation in places, and elaboration in others. The chapters most changed are those on the blood, the circulation, respiration, food and digestion, and muscle-nerve physiology. The illustrations have been improved and several new ones added.

The work is standard, and needs only the announcement of a new edition.

A Text-Book of Histology.—By Frederick R. Bailey, A.M., M.D., Adjunct Professor of Normal Histology, College of Physicians and Surgeons, New York. Profusely illustrated. New York: William Wood & Company, 1904. 481 octavo pp. Price, $3.00.

The author has aimed to furnish a text-book for use in connection with practical laboratory work and as an aid in class room teaching in this important branch in medicine. The fact that the book is approved and in use at Columbia, is sufficient endorsement of its standing. The text is clearly stated, excellently illustrated, and well printed. There is no doubt about its becoming a standard text-book.

RETROSPECTIVE THERAPEUTICS

In a recent paper read before his State Medical Society, Dr. Solomon Solis Cohen strikes the key note of the future in a masterly conspectus of the drugs found most useful in the treatment of heart disease, together with clinical observations of value to be expected from the large experience and acute discernment of the author. Drugs, he begins by remarking, are the least useful of all remedies employed in the treatment of this class of affections. More benefit, as a rule, is to be obtained from exercise, from rest, from diet, from massage, from hydrotherapy. Nevertheless, there are some cases in which these measures, or some of them, cannot be employed and many cases in which, while physiologic measures are applicable, they are not available. In these, our reliance must be largely upon drugs, while even in those cases in which physiologic measures are the chief remedies indicated and are also within reach of the patient, drugs may be needed from time to time as adjuvants to the treatment.

Of all drugs used in diseases of the heart digitalis is still the sovereign. No complete substitute has been found for it. Great though the good done by digitalis, however, perhaps even more harm is done by its use in cases in which it is unnecessary or even contraindicated. We have all of us seen such cases in dispensary practice and elsewhere. It is to be taken for granted that no physician will prescribe digitalis or any other drug in a case of heart disease in which the valvular lesion has been compensated and functional symptoms are wanting. The harm usually comes from its prescription in cases of slight functional symptoms, and then, not so much because of the use of the drug itself, as because it is given in excessive doses or for too long a period. There is, however, one particular instance of valvular lesion in which digitalis itself in any dose is likely to do harm, and that is mitral stenosis, especially in children. Whether in children or in adults, and whatever may be the immediate symptom bringing the patient to attention, a marked characteristic in all cases of mitral stenosis in which the attempt at compensation has been made or is in progress is the marked disproportion between the cardiac activity and the strength and volume of the pulse. Often the heart thumps against the chest so forcibly that palpation is not necessary to recognize the violence of its action, while the pulse is small, feeble and easily compressible. To give digitalis under these circumstances, simply because the heart's action is frequent and the pulse weak is to increase the functional disturbance. The rise in blood pressure and the increased force of the cardiac contractions, neutralize the problematical value of the decreased rate of cardiac frequency. Under some circumstances rest in bed is necessary and it is always advisable in the beginning of treatment. But when great disproportion between the cardiac force and the strength and volume of the pulse exists the drug or drugs to be chosen are those that will bring about harmony in its place, namely, nitroglycerin to relax the peripheral circulation, and aconite to overcome the tendency to excessive and fruitless force of the cardiac contraction. The dose of aconite to be given and the time over which its administration is to be extended must be determined by the indications in the individual case as by the results from day to day and week to week. The author has in one case continued the administration of aconite at intervals for over five years.

Not only in these cases of mitral stenosis is digitalis capable of doing harm, but also in many cases of aortic regurgitation, through its action in prolonging the diastole. Nevertheless, there is no other drug so useful in simple cases of mitral regurgitation. When mitral regurgitation is associated with mitral stenosis the question of using digitalis must depend largely upon the nature of the predominant lesion, upon the proportion between the cardiac action and pulse force and upon the rational symptoms. In some such cases, paradoxical as it may appear, aconite and digitalis may usefully be combined; or aconite may be used to reduce the excessive action of the heart and then digitalis be given to maintain its activity at the desired point. In these cases, however, and indeed in most cases, it is necessary to guard against an untoward effect from digitalis by using nitroglycerin in conjunction with it. More especially when there is disease of the blood vessels in connection with disease of the heart, as in case of fibroid myocarditis, is it necessary to guard by the use of nitroglycerin against an excessive digitalis-rise of pressure in the arterial system. The fact that drugs may have decided effects upon the coronary arteries as well as upon the peripheral arteries, must not be lost sight of. Thus digitalis by contracting the coronary arteries sometimes interferes with the nutrition of the heart. Practitioners will have to be guided by the empirical results of the particular drug chosen, always bearing in mind, however, that it is necessary to watch the condition of the vessels as well as that of the heart and to see that the action of heart and pulse are harmonious and proportional.

The great value of nitroglycerin is in relaxing the vessels, and in many cases nitroglycerin alone may be given without any of the cardiac tonics. Especially in early cases of fibroid changes of the heart and vessels is this drug of service and in much smaller doses than is the common custom. Thus the author frequently prescribes 1-400 of a grain two or three times a day, and even in cases in which it is necessary to get the full effect of the drug he has seen better results from 1-500 of a grain every ten or fifteen minutes than from 1-100 of a grain every hour. Sodium nitrate gives a more prolonged effect than nitroglycerin, but a less rapid one. This, too, is commonly used in too large doses; 1-20 of a grain rather than 1-8 should be employed. The exception, of course, is in cases of angina pectoris. In this condition large doses should be used fearlessly in the attempt to prevent the attacks from recurring.

Erythrol tetranitrate is sometimes used in cases in which neither nitroglycerin nor sodium nitrate succeeds in warding off the paroxysms of angina, the dose being about 1-8 of a grain three or four times a day.

Amyl nitrate may be reserved for use by inhalation in emergencies and then should be used in much larger doses than is common. It will, when inhaled in these large doses, dilate the coronary arteries as well as the peripheral ones.

Except in the case of mitral stenosis, the seat of valvular lesion is usually of less importance in selecting the remedy to be used than the state of the cardiac muscle. When compensation is good there is practically no disease to be treated. When compensation fails we have practically a condition of dilation to deal with. When, as in the case of mitral stenosis, compensation is imperfect and on account of the excessive attempt there-

at the heart is functionally hypertrophied, we have practically to treat it on the same lines as a case of hypertrophy.

Digitalis is the drug to use in cases of dilation. Aconite is the drug to use in cases of hypertrophy. But digitalis, even in cases in which it is indicated, cannot be used continuously. There comes a time when it must be stopped, and some other drug, similar in action, substituted. Among these, in the author's opinion, strophanthus holds first rank. It is superior to digitalis as a sedative to the heart nervously overacting. It does not raise the peripheral blood pressure by contracting the vessels to anything like the extent that digitalis does and it soothes as well as strengthens. Hence it is, as a rule, better than digitalis in cases of mitral stenosis associated with regurgitation. Therefore it is applicable in sedation of the overacting heart of exophthalmic goitre. Hence it is applicable in cases of myocarditis, with beginning fibroid changes in the arteries.

Adonis vernalis is a drug of the same order as digitalis and strophanthus, which may be used in substitution or in combination with these, and best, perhaps, in the form of adonidin in doses of from 1-24 grain to 1-8 grain, once, twice or thrice daily, according to effect. Sometimes a combination of strophanthus, digitalis and adonis acts better than any one of these singly.

For the relief of cardiac pain, cactus is, perhaps, superior to any other remedy of this group, and a combination of digitalis, adonidin and cactus with nitroglycerin is often very useful in threatening rupture of compensation associated with precordial distress or actual cardiac pain.

A drug not often thought of in connection with cardiac medicaments is mercury. Even when syphilis does not underlie the condition of myocardial change—and this etiology is much more common, probably, than is generally recognized—small doses of mercuric chlorid given for short periods seem to exert a good influence upon the nutrition of the heart. The drug should not be continued for too long a period, but its administration may be repeated several times in the course of treatment. Cases of myocardial disease are here referred to rather than cases of valvular lesion. The good effect of small doses of calomel continued over two or three days in cases of cardiac anasarca, especially in that dependent upon aortic lesion with softened compensation, is probably indirect, through the kidneys. Potassium iodide or sodium iodide is another drug useful empirically in the treatment of cardiac disturbance of various kinds. Small doses tend to steady and strengthen the heart in cases of tobacco poisoning. Moderate doses continued for brief periods and repeated from time to time are useful in cases of fibroid change in the cardiac muscle, especially when this is associated with sclerotic changes in the arteries. Minute doses seem to have a good effect ooccasionally in alleviating precordial pain.

Strontium bromid has a decidedly sedative action upon the stomach and is a useful drug for quieting nervous overaction of the heart, even in cases not of gastric origin. The combination of strontium bromid, digitalis and nitroglycerin in cases of secondary cardiac disturbance in interstitial nephritis is often extremely useful.

Dr. Cohen, in closing, refers to three drugs of proved efficacy for quick stimulation of a failing heart in cases of chronic heart disease in which there has been some sudden rupture of compensation or in cases of acute infectious diseases.

First of these is suprarenalin (epinephrin), which may be given on the tongue or injected in any convenient solution under the skin. Its effect is quick and transient. A useful dose is 1-20 to 1-10 grain.

Second is camphor, which may be injected hypodermically in a 10 per cent. solution in sterilized olive oil or in 10 per cent. solution in ether. Exact dosage is unnecessary, about a syringeful, say 20 to 30 minims, can be used. The effect is prompt and usually lasts for some hours.

The third is musk. Unfortunately, much of what is sold in the shops for musk consists of the outer covering of the musk grains mixed with a great deal of dirt and is therapeutically inert. Real musk is expensive, but is therapeutically potent. One must see that the druggist has the real musk in stock and is prepared to dispense it upon prescription, and one must provide oneself with a small quantity of the tincture, in order to be prepared for emergencies when a druggist cannot be reached. Five or ten drops of musk tincture given hypodermically exert a powerful influence in overcoming the tendency to cardiac collapse, and the action of musk is more sustained even than that of camphor. In cases in which a cardiac collapse is suspected to be impending it is useful to administer 5 to 10 drops of musk by the mouth two or three times a day in anticipation or even in successful prevention of such an accident. The camphor solution and the adrenalin should be at hand for use hypodermically in any sudden emergency.

Water Anesthesia in Surgery, and its Suggestions in Medicine.—Joseph Clements describes two cases illustrating the effects of the injection of distilled water. In one case five hemorrhoids were injected with the water, emptied, clamped, tied, and cut away. The operation took about fifteen minutes, and the patient returned home at once after the operation. In another case two fistules were opened and scraped, one after the injection of water, and the other without water injection. In the last process the pain was intense. The writer describes the process as follows: The water enters the interspaces of the tissues and fills them; the pressure of the distension causes rapid osmosis into the intracellular interspaces which are between the granular appearing substance, the protoplasm, temporarily suspending intracellular respiration. This, like the heartbeat, is incessant, and when it is stopped, local death is caused for the time being. The nerve centres are paralyzed and no afferent impulse is sent, and no response arises in the central ganglion, and pain is consequently impossible. There is just as much of "curative" or other "property" in distilled water as in solutions of cocaine or any drug. In other words, there is none whatever. The "property," the therapeutic or whatever action arises, is protoplasmic. Upon the fact and principle of protoplasic activity are to be interpreted all organic phenomena.

New Method of Testing the Heart.—M. Katzenstein (*D. Med. Woch.*, June 2, 1904), proposes a new method for determining the functionating power of the heart, which is particularly of service when that organ is about to be subjected to the strain of a surgical operation. The patient is placed in a reclining position, and when thoroughly quiet, the pulse rate and blood pressure are determined. Compression of both iliac and femoral arteries is then secured and kept up for two to five minutes, and then the changes noted in blood pres-

sure and pulse rate. In a normally acting heart, the pressure causes a rise in the column of mercury of the instrument, of from 5 to 15 MM., while the pulse rate remains the same or is slightly diminished. In case of a hypertrophied heart, a rise of from 15 to 40 MM. is noted, and the pulse remains the same or is increased. A slight insufficiency is accompanied by a pressure of zero, and a pulse rate unchanged or increased. A marked insufficiency causes a minus pressure and an increase in the pulse. The method has the advantage of being simple and easily applied, any excitement being the only factors which might influence the result. This must be carefully guarded against.

Local Treatment of Hay Fever.—E. Fink (*Therap. Monatsh.*, April, 1904) criticises strongly the antitoxin treatment of hay fever and looks upon the disease as a purely local process in the antrum of highmore, caused generally by pollen. A rhinoscopic examination during an attack will invariably disclose an excessive discharge in the middle meatus and a trocar introduced into the antrum will draw off fluid. The patients are generally neurasthenics and very prone to react to slight stimulation. Secondary symptoms such as a conjunctivitis and asthma are merely reflex disturbances. The most satisfactory treatment is the application of aristol directly to the mucous membrane of the antrum by means of a thin cannula. Six or seven applications are usually sufficient, but it is generally advisable to repeat the treatment every season.

Sulphanilate of Soda in Basedow's Disease.—Kirnberger, in *Gaz. Sicil. di Med.* (Nov. 26, 1903), advises the use of sulphanilate of soda in Basedow's Disease, to counteract the auto-intoxication due to the excessive production of iodine by the thyroid body. His formula is as follows:

℞. Acidi sulphanilici, gr. 10 (℈viii); sodae carbonatis gr. 8.05 (℥ijss); aquae destill., gr. 200 (℥ss). Dose, 3 to 5 teaspoonfuls a day.

While little change in the hypertrophied thyroid has taken place, symptoms are much relieved by this treatment.

The Soluble Ferments of Cow's Milk.—Dr. Joseph Lespinasse, of Montreal (*Med. Record*), refers to the fact that although human life may be indefinitely sustained by the exclusive use of natural milk, an artificial mixture of albumins, fats and sugars in the same proportions as these three alimentary factors are found in milk, will not maintain life beyond a limited period. This fact was well demonstrated by Lunin, who fed to mice (also capable of existing indefinitely on natural milk as a sole diet) an artificial milk, formed by precipitating the casein and fat of raw milk and then adding cane sugar and the mineral salts in proper physiological proportions to represent an excellent grade of milk. The mice ate with avidity this chemical exact reproduction of the constituents of milk, but died in from twenty to thirty days. What was lacking in order to make this artificial product capable of supporting life indefinitely is now understood to be the enzymes, which are the acting living force in natural milk. These unorganized soluble ferments are the chemically intangible factor in the composition of natural milk, and were, of course, destroyed by Lunin's method of precipitation of the casein and fat with acetic acid.

These results explain why sterilization of milk has not proved an ideal method of feeding, since the enzymes are destroyed at a temperature of 176° F. The same deduction applies to all artificial foods, no matter how chemically identical with mother's milk they may be. Sterilized milk and all artificial blending of the chemical constituents of milk produce soft muscles, irregular development, and weakened resistance to infection, while some physicians claim that they are the indirect cause of scurvy. On the other hand, milk not heated beyond a moderate temperature is more easily digested, and imparts greater vitality than can be obtained by continued use of artificial substitutes or by sterilization.

The enzymes seem essential for the development of vital phenomena, and their absence or destruction by sterilization devitalizes a food to an extent that removes the product from being considered a natural method of feeding. In some way the enzymes are a force aiding digestion and absorption within the alimentary tract. Absolute sterilization in nature is disastrous to life by removing an essential element in the vitality of protoplasm.

Kumyss Treatment in Tuberculosis.—In Russia the kumyss, made from mare's milk, has long been very extensively used as a remedy in consumption. Levashoff points out that the Russian people early recognized the fact that the rational treatment of tuberculosis did not consist in specific medication, but in the improvement of the powers of resistance of the body. This is the object of kumyss feeding, and Levashoff places this therapeutic method at the head of all the public measures which should be adopted in the struggle against the disease in Russia. In the spring and the early summer there is a great annual pilgrimage of consumptives eastward and southward by railroad and down the Volga on steamers. These patients come to drink kumyss in one of the provinces of Ufa, Samara, Saratoff, Orenburg, etc., and the great majority of the patients belong to the less well situated classes. Levashoff gives statistics showing that over thirty per cent. of consumptives in the first and second stages recover completely on simple kumyss treatment, and that over thirty-seven per cent. are considerably improved. He enters a strong plea for a better organization of kumyss treatment, for provision for medical attendance upon poor consumptives who take this "cure" now entirely without medical aid, and for a systematic study of the kumyss treatment.

The Trance Dancer.—Medical circles in Germany are much interested at present in a certain Mme. Magdeleine G., a Russian, who gives a most artistic dancing performance in a hypnotic sleep. The performance is a musicale, but after being hypnotized by her manager, Magnin of Paris, the sound of the music impels her to dance, while she falls into a cataleptic condition the moment the music ceases. Furer writes to the *Deutsche Med. Woch.* that the entertainment seems like a revival of a barbarous practice of exhibiting insane persons to the gaping public. Gruenwald, in a letter to the *Muench. Med. Woch.* takes much the same stand. He expresses the hope that the Munich Medical Society, which is the first scientific society before which the trance dancer has appeared, will insist on the pathologic character of the performance and protest against its being permitted as a public entertainment. Lowenfeld contributes an article showing the features which stamp the performance as genuine, citing in detail the facts which speak against stimulation of the hypnotic condition. Schlagintweit, on the other hand, is convinced that the hypnotic setting is merely an advertising trick. This difference of opinion and the various discussions

have been duly exploited in the lay, press and the *Schlaftaenzerin* is the sensation of the day in Munich. The laws in Germany forbid exhibitions of hypnotism for profit, but her manager, Magnin, has succeeded in evading the law by some legal quibble. He is a professional magnetic healer and has exhibited the trance dancer only in a few private circles hitherto, mostly in artists' studios at Paris.

Chloral Hydrate as a Solvent.—Attention may be drawn (*Zeitsch. der Oesterreich*) to the extraordinary solvent powers of chloral hydrate. It has long been used for microscopic purposes to render objects transparent, but its solvent power may also be utilized in many other ways. For example, in toxicological investigations for the detection of alkaloids a 60 per cent. solution of chloral hydrate dissolves all alkaloids and their salts, even the usually insoluble tannates. Resins, gum-resins and balsams are almost all soluble, and in case of gum-resins a quantitative separation of the constituents may easily be effected, because by adding alcohol to the chloral solution the gum is precipitated, while the resin is thrown out by adding water. Fats, oils and waxes show variations of solubility which may serve for their partial differentiation. Vegetable coloring matters are dissolved by chloral hydrate solutions, with the exception of indigo, and the presence of indigo in litmus—which is stated to be very common—may be thereby detected. In the investigation of blood-coloring matter, starch, gelatin and proteids, the solvent action of chloral hydrate may also find useful application.

The Postural Treatment of Movable Kidney.—G. Gore Gillen, M.D., F.R.C.S.E., in a clinical and pathological note on this subject (*Australian Medical Gazette*), says:

"One fact should clearly be borne in mind, viz., that the symptoms of movable kidney are due to the erect position man assumes in his daily walk in life, and that were it possible for him to do all his ordinary duties with the thorax some two feet lower than the pelvis, the symptoms would not exist. It is purely a matter of the position of the body. I would also point out that if you place your patient in that position when he comes to see you, you will be surprised at the comfort and ease experienced by the sufferer, who in the erect position was a picture of what Treves calls 'flabby woe.'"

One must, of course, remember that other structures besides kidneys (as Professor Ewald once remarked to me in his clinic at Berlin, in 1894), may be in abnormal positions in the abdomen. In a recent case I found that the liver was also very low down, and freely movable, so that I had to fix it up as high as possible, and after that secured the right kidney in its place; the latter being possible only when the former could no longer act as a depressor.

Since writing the above I noticed a valuable paper in another journal on the operation for fixing movable kidneys, in which the author lays stress on the adoption of the Trendelenberg position in and after the operation, and the use of temporary ligatures to hold the kidney in its socket before applying the fixation ligatures. The Trendelenberg position has been used by me for many years past, but I *remove* the under-resected part of the kidney capsule.

Do not cut or pare hard corns. The common sense method is to remove them with medium sand-paper. Rub carefully and the surface will be smooth and soft.

JAPANESE TREATMENT OF WOUNDED MEN.

Dr. Louis Livingston Seaman, of this city, who has seen much of the Japanese hospitals, and has lately been staying with the Chinese bandits, 10,000 in number, near Mukden, has arrived at Che-Foo. A correspondent of the daily *Times* reports some interesting observations of his on the Japanese method of treating wounded men. He says that the Japanese are giving proof of the benefits to be derived from non-interference with wounds on the field, where they content themselves with the application of first-aid bandages and antiseptics, leaving the more serious work to be done in the hospitals at home. This course is followed except where there is danger of the wounded man bleeding to death or where his condition is very precarious.

The result of this practice has been that many men suffering from bullet wounds at the front are nearly well when they reach Japan. In one hospital ship returning to Japan from the front there were 2,200 wounded men, and there was not a single death on board during the trip.

There have not been more than three deaths among the wounded who have been returned to Japan after having received first-aid treatment only.

If the Japanese soldier is not killed outright, Major Seaman says, the chances are that he will recover. His temperate habits and his plain and healthful diet of fish and rice, varied occasionally with meat, contribute much to his recovery.

Russian wounded captured by the Japanese have been treated in a similar manner, and the recoveries among these men are scarcely less in proportion than among the Japanese.

A new complication has been discovered in the wounds sustained in this war due to the extraordinary high speed of small-calibre bullets, which produces aneurisms. Major Seaman saw twenty-seven operations performed for the relief of this new condition.

NOSE PULLING AS A REVIVER.

According to a recent paragraph under this heading, in the *New York Medical Journal*, De Bove's rhythmical tractions on the tongue for the relief of suspended animation have been much written about of late. They may now be supplanted or supplemented, it appears, from reports by Panyrek (*Spornik Klinicky*, 1904; *Bull. Med.*, May 4), by rhythmical elevation and depression of the nose continued for a minute or two.

That this latter method of treatment, like so many other ideas supposedly modern (especially in the realm of medicine) was well known to Shakespeare, is proved by the following passage from the second part of King Henry VI., Act III, Scene 2:

"(*The King swoons.*)

* * * * * * * *

SOM.: Rear up his body; wring him by the nose!"

LIMITATIONS OF DIGITALIS.

At the recent meeting of the American Medical Association, in the section of medicine, a discussion took place on the limitations of digitalis in heart disease, which deserves a somewhat extended notice, as showing that the tendency among many physicians to use this drug in all cardiac cases where compensation is broken, has probably done much more harm than good. The leader in the discussion declared that the false princi-

ple of giving digitalis whenever there is heart disease with symptoms, cannot be condemned too much, and in this, regarded as a general rule, all the succeeding speakers were fully agreed. There was never, he said, any justification for the use of digitalis in aortic regurgitation, no matter what may be the condition of the heart muscle. In mitral regurgitation, on the other hand, digitalis is the most helpful of drugs whenever symptoms are present. Stress was laid upon the great importance of rest—absolute rest in bed, the patient not being allowed to sit up to eat or read. In the treatment of heart affections, digitalis or any other medicine is of little consequence compared with this requirement. The danger from digitalis, if the existence of aortic disease is to be considered a sufficient indication for the employment of that drug, arises from the fact that aortic disease is more frequent than mitral disease in the ratio of about 3 to 2. Aortic disease is very often the result of the spread of some infectious process, or perhaps a syphilitic process, from the arteries. In such cases no drug can possibly do more harm than digitalis. When there are degenerative changes in either the vessels or the heart itself, digitalis must not be used. In simple aortic valvular disease, however, without vascular changes, the drug may be of good service.

MALTHUS UP TO DATE.

A recent bulletin of the Department of Agriculture would seem to demonstrate by means of impressive figures that the rate of increase of land devoted to the growing of wheat and oats is less than the rate of increase of the population. In the thirty years before 1880 the wheat average increased very rapidly, the yield having grown from one million to more than four and a half million bushels. Since 1880 the increase in wheat area has been slower, and for this year it is less than in any one of the three years immediately preceding. This tendency obtains also for other food staples, and until it is reversed food is destined to become more and more costly, because less abundant.

It seems that farming is not expanding in the same ratio as population is increasing; the bulletin attributes this to an artificial redistribution of population. The towns and cities are building up at the expense of the farming districts. A pity this, by the way, and something of human folly, to prefer the madding crowd, the thousand-noised streets and the bacillus-laden house to the ineffable peace of the country and its pure air and sunshine. During the last census period the towns and cities in the group above 2,500 inhabitants increased one-third and in the preceding ten years ended 1890 they gained 49 per cent. In each of the decades the gain for the rest of the Union was only about 14 per cent. On the other hand, the introduction of agricultural machinery has increased the per capita efficiency of the farm labor per unit of man power by much more than the difference between 14 and 33 per cent. Perhaps one reason for the flocking of the misguided population of the rural districts to the towns and cities is that the former produce more labor in the shape of sturdy and ambitious young men and women than can find profitable employment through twelve months of the year in the fields. However, no great alarm need be occasioned by the state of things here expressed. The greatest danger is that the man on 'change may use these facts to corner the market and raise the price of grains.

DAMIANA AS USED AT HOME.

Dr. John Uri Lloyd has made an interesting study of this drug, and *Practical Druggist* summarizes his conclusions as follows: Damiana is a Mexican shrub, its habitat being on the peninsula of Lower California, inland from La Paz. It was introduced to American medicine under a misunderstanding of its nature. It is not a Mexican drug, but a general beverage. Its qualities reside in a fragrant leaf, yielding to hot water a pleasant, harmless, tea-like beverage which, so far as history determines, has been consumed for all time by the Mexicans, and is still so employed by all classes, men, women and children alike. It is a gentle stimulant or tonic, kindly in action, pleasant to the taste, and acceptable to the stomach. Its medicinal qualities are mainly restricted, in Mexico, to cases where a gentle stimulant may be effectual, as in suppressed menses, in which it is desirable to administer a hot drink in connection with a grateful aromatic that will not disturb the stomach. In other words, damiana is a homely domestic remedy, innocent of the attributes under which, in American medicine, it has, for a quarter of a century, been forced to masquerade. Its medical field is now restricted, but in its true position the use of damiana may be broadened.

The State Hospital for the insane at Trenton, N. J., recently graduated nineteen nurses, especially trained for the treatment of the insane. The plan is a new one. All members of the class will be retained at the hospital.

UNIVERSITY OF THE STATE OF NEW YORK.

EXAMINATION IN THERAPEUTICS, PRACTICE AND MATERIA MEDICA.

1. In what pathologic conditions is jaborandi useful?
2. Give the treatment, other than surgical, of hemorrhoids.
3. What is the dose of carbolic acid for internal administration? What are the chemical antidotes for carbolic acid?
4. What serious results may ensue from indiscriminate use of acetanilid?
5. Give the dietetic treatment of diabetes mellitus with the rationale of the same.
6. What is *cascara sagrada?* State the dose of the fluid extract of cascara sagrada.
7. What is the common name of lactucarium? State the physiologic action of lactucarium.
8. Give the symptoms and treatment of true angina pectoris.
9. Mention the therapeutic uses of hydrocyanic acid.
10. What part of aconite is used in medicine? What is the alkaloid of aconite?
11. Write the prescription for corrosive sublimate to be used as a parasiticide.
12. What are the therapeutic uses of tincture of capsicum internally administered? State the dose of tincture of capsicum.
13. How is liquor ammonii acetatis prepared? In what condition is this preparation useful?
14. Define *cholera nostras.* What treatment is indicated when this condition is present?
15. What is the physiologic action of colchicum?

MISCELLANY

Dr. Emily Dunning was appointed house surgeon to Gouverneur Hospital on July 1st. Dr. Dunning is the first woman physician to occupy such a position in this city.

An Extraordinary Case of Suicide, by an apothecary residing near Geneva, is reported in the London papers. He poured nitroglycerin into a mortar, placed it between his legs, and began to pound it with a pestle. Soon a frightful explosion occurred.

Two Soldiers Died recently at Sandy Hook after drinking a cheap grade of bay rum which was supposed to contain wood alcohol. Owing to the abolition of the canteen soldiers have been known to consume quantities of patent medicines, and even in some cases red ink, etc.

A Memorial to Dr. Jared Linsly, a prominent and highly esteemed New York physician of the last generation, has been provided for by a bequest of $250,000 to Yale University from William B. Ross, of the class of 1852. This fund is to be used for the construction of the much needed central section of the university library.

Dr. William P. Spratling, of Sonyea, N. Y., is anxious to get accurate data bearing on the influence of the dentition periods—especially the first period from the sixth month to the end of the first year or thereabouts—on the production of convulsions, epilepsy in particular. He will be grateful to any physician sending such data to him.

A Highly Important Prediction was made by Sir William Ramsay at the annual banquet of the Society of Chemical Industry. He said: "It seems to me that we may be on the eve of the discovery of the origin of the ordinary elements, which may be the products of the breaking down of radio-active elements of high atomic weight."

A New Cause of Danger to Life has just developed in the explosion of 150 pounds of ammonia in an ice machine in the basement of the Bourse, by which three men were injured. In addition to the likelihood of injury from flying pieces of metal, the escaping ammonia fumes are injurious to the eyes and to the respiratory mucous membrane.

That Blue Light is a Good Anesthetic has lately been revealed through the experiments of two German professors who sought to learn the effects of colored light upon the nerves. A patient was put in a dark room and his eyes were exposed to a sixteen-candle blue light for three minutes. This caused him to lose the sense of pain, and a tooth was then painlessly extracted without any unpleasant after-effects.

Those About to Marry in Ohio must now, by reason of a law passed by the last legislature, answer the following questions, only on satisfactory answers of which will licenses be granted:

Is either party a habitual drunkard?

Is either an epileptic?

Is either insane?

Is either under the influence of an intoxicating liquor or drug?

The Best Treatment of "Black Eye" is by cloths wet with ice water or with a lotion of a dram each of alcohol and liquor plumbi subacetatis to the pint of distilled water. When a definite blood-clot has formed in the lid, incising the skin and allowing the blood to escape, with subsequent application of an antiseptic dressing, is good practice. After two days the only thing to do is to cover up the discoloration with flesh-colored paint.

The Dead Line is the great sign of plumbism and, according to Gowers, is nearly always found by a careful search with the magnifying lens. He says it is typical in proportion as it approaches Euclid's definition of length without breadth, always provided it is black. Consisting as it does of the edge of a deposit of lead sulphide beneath the inner surface of the gum, wherever this is separated from the teeth, even in a very slight degree, the line is absent only in those rare cases where the gums and teeth are in perfect apposition throughout the whole extent of both jaws. The smallest fragment, if distinct, is as significant as the most extensive deposit.

A Perfect Substitute for Absolute Alcohol, known as "synthol," is prescribed in the *Scientific American*. It may be used for every purpose for which alcohol is used except for internal consumption. Being chemically pure it does not have as much odor as absolute alcohol from grain or wood. It is colorless, is non-irritant to eyes or skin, and has ten to fifteen per cent. more solvent power than ordinary alcohol. As a killing, fixing or hardening agent it is in every respect equal to the best absolute alcohol and can be used as a substitute for it in the preparation of stains, reagents, etc. As a preservative it is superior to any alcohol, since alcohol becomes tinged on exposure to light, while synthol remains absolutely colorless under all conditions.

Death Sentences are never executed in Belgium, because King Leopold promised his mother as she was dying that he would never sign his name to a death warrant. Consequently, although the statute prescribes the extreme penalty, it is only carried out constructively. The condemned person is regarded as dead in the eyes of the law. In place of his personal appearance on the scaffold the headsman substitutes a broadside bearing his name and sentence, posts this where it may be read by the people, and so leaves it, while the criminal is put in prison to stay there for the term of his life. There have been efforts to persuade King Leopold to make an exception in the case of the three Liége anarchists—petitions signed by thousands have been presented to him—but he will not yield. The practice of capital punishment is going more and more out of use in civilized countries.

Mr. Hobart Langdon, writing on "Complexions and Insanity," says that only 3 per cent. of the total number of insane people have light hair, and only 2 per cent. have blue eyes. His figures are obtained from 68 asylums in various parts of the United States, Canada, and England. The total number of patients in these institutions was 16,512, of whom 703 had light hair, and only 66 red hair, or auburn locks. In other words, 96 per cent. of the inmates were brunettes, with either black or brown hair. In one asylum in New England there was not a single inmate that was not a brunette. He makes no attempt to account for this peculiar fact, but asserts that it certainly looks as though blonds were less liable to insanity than those with darker hair or eyes. A peculiar feature was that the percentage of those regarded as incurably insane was much greater among the blonds than the brunettes. The total shows that among the dark-haired inmates only 50 per cent. were marked hopelessly insane, while among the blonds, 81 per cent. were put in this category, and that only 3 among the red-haired patients escaped the same classification.

ILLUSTRATIVE CASES DUE TO EYE-STRAIN WITH EXPLANATORY REMARKS CONCERNING THEM.

BY AMBROSE L. RANNEY, A.M., M.D., NEW YORK.

PART II.

ILLUSTRATIVE CASES.

THE cases which I have selected for publication here illustrate very forcibly the following important points relative to the effects of unsuspected eye-strain upon the physical health.

1st. The absolute failure of drugs to relieve certain distressing conditions that were caused by eye-strain.

2nd. The almost immediate disappearance of these symptoms after the scientific detection and relief of eye-strain.

3rd. The *permanency of this relief*—after intelligent eye-treatment had been completed.

4th. The failure of relief from a scientific prescription of glasses alone, in some instances; thus demonstrating that the *accurate and careful correction of errors of refraction is not the only duty of the oculist.*

5th. That apparent anomalies of adjustment of the eye-muscles (a condition termed *"heterophoria"*) may be created (in a certain proportion of cases) by errors of refraction and be entirely cured by proper glasses alone without surgical procedures.

6th. That in a certain proportion of cases, eye-strain from "heterophoria" (mal-adjustment of the eye-muscles) may exist with absolutely perfect refraction.

7th. That in a certain proportion of cases, *errors of refraction and "genuine heterophoria" may co-exist;* as independent factors in causing eye-strain and its attendant physical ills.

8th. That headache, nervous prostration, nervous dyspepsia and other digestive disturbances, sleeplessness, neuralgias, St. Vitus' dance, diabetes, epilepsy, and insanity may be but the *outward manifestations of unsuspected eye-strain.*

9th. That a physical examination of a sufferer from any type of nervous disease or a physical breakdown *is not complete to-day* without a scientific search for all possible sources of eye-strain.

10th. That medication for functional nervous derangements should always be deferred until the existence of eye-strain has been sought for by scientific and modern methods and (if found to exist) properly relieved.

One very important fact is brought out in the clinical history of some of the cases here reported, to which the attention of the reader should be forcibly drawn, viz.: *that the correction of the refraction, of some of these patients by glasses had been very thoroughly done by competent oculists before I saw the patients, without any appreciable relief to their nervous symptoms.*

This point is made here because it has been, and still is asserted by a few oculists of repute, that "all muscular defects in the orbits are dependent upon and always caused by errors of refraction."

Such a statement is too absurd and untenable to be discussed seriously. It can be proven so beyond the possibility of a doubt, by any one who has had a large experience in treating anomalies of the ocular muscles.

Case II. alone ought to show to any unprejudiced mind that the refraction of the patient was totally independent of the muscular defects. Yet these muscular defects entailed eye-strain to a degree that was destroying the general health—and still they had been overlooked or ignored.

Case I.—Headaches, Followed by Nervous Prostration, with Melancholia and Complete Physical Collapse.

Mrs. C., married; age, 35. This patient had always been near-sighted and astigmatic. She had worn glasses since she was a girl. Like most sufferers, who are victims to the peculiar form of anomaly of the eye-muscles that she disclosed, she had been troubled more or less from childhood with headache. She had always been rather a delicate woman; but in latter years she had gradually become unable to endure shopping, attendance at the theatre, or traveling without marked physical exhaustion and suffering. Although the wife of a very prominent lawyer and blest with all the surroundings of wealth, she also commenced some five years before I saw her to suffer greatly when using her eyes for any length of time. For this difficulty she was treated by various oculists, but without any marked benefit. Gradually her physical condition began to run down; in spite of tonics, massage and electricity. With this loss of strength an alarming change in her mental condition developed. From being a buoyant happy wife, she became almost a melancholiac. From this condition it was impossible at times to arouse her. She was obliged in consequence to give up almost all social duties and amusements; and the accompanying physical weakness kept her confined to the house for a greater portion of the time.

Her family and physician had become justly alarmed before I saw her lest her mental condition might assume an incurable type. She was sent to me to ascertain chiefly if I could find any cause for her nervous collapse and mental depression.

A careful examination of her eyes showed that she was wearing proper glasses for her near-sightedness and astigmatism; but that a high degree of "latent" esophoria existed. During the few days that she wore prisms (for the investigation and partial correction of this trouble) she experienced such immediate and marked relief both in respect to her eyes and physical weakness, that she and her family both welcomed with delight a possibility of a radical correction of the esophoria and the cessation of its attendant eye-strain. During the six weeks she was in New York under my care, a button-hole tenotomy was performed by me on both internal recti, with the most gratifying results from both the physical and eye standpoint. The improvement in her mental condition was immediate. Before she left this city to return home, she was able to walk long distances, do moderate shopping without fatigue or headache, attend places of amusement and use her eyes for reading with more comfort than for many years. It is now over ten years since she returned home. During the first year, she entirely regained her former cheerfulness and health. She is today regarded by her physician and family as entirely cured. Her headaches have entirely ceased. She is no longer car-sick. She is able to use her eyes moderately without pain or inconvenience. She has gained greatly in weight and strength, and is again prominent in all social affairs.

Eye-tests were lately made in my office to see if her eye-muscles required further treatment. It was found that perfect "orthophoria"* existed. The balance estab-

* See preceding table of terms relating to ocular defects

lished by two painless steps was perfect; and no trace of the old tendency of the eyes to cross could be discovered.

Case II.—Constant Headache for Several Years, and Inability to Use the Eyes without Greatly Intensifying the Pain.

Miss F., single, aged 19. This young lady was brought to my office by her uncle, a physician, who had tried all remedies to relieve her headaches without any benefit. *The pain was chiefly in the occipital region, and was constant both day and night.* Whenever she tried to use her eyes, the pain became more intense. As she was desirous of becoming a teacher, her chance of being self-supporting in that field seemed far distant. She had been treated for the anemia that was very apparent; her organs had been examined and found to be free from disease; her bowels' action was normal; her menstruation regular; and no apparent cause existed to explain her long-continued suffering.

An examination of the eyes *disclosed apparent emmetropia* and *she tolerated no plus-glasses;* but under atropine a very low grade of hypermetropia was found. She was prescribed prisms for esophoria. At once she felt somewhat relieved, and she reported the next day that the glasses were very comforting to her. Within a month, I performed graduated tenotomies upon both the interni, as a high degree of "latent" esophoria manifested itself. Within a week after the last operation the pain in the head ceased, and the patient rapidly regained her strength, weight and color.

Ten years have elapsed since then, yet this patient continues to be free from pain and has become a strong, robust, healthy woman. She has not yet worn glasses. Her ability to use her eyes without them and the entire disappearance of pain, leave no ground for me to prescribe them either for reading or constant use. She has been a teacher for about seven years since the relief of eye-strain. She has no headaches, and has increased greatly in weight.

Case III.—Complete Nervous Prostration, Loss of Memory and Inability to Concentrate Thought, Suspecting Softening of the Brain.

Mr. C., married, aged 42; accountant. This is one of the most remarkable and obscure eye-cases that I have ever yet encountered. The final results obtained were far better than any one interested in the case at first hoped for or expected. The eye factors in the case were peculiarly obscure, and harder to determine satisfactorily to myself than to correct surgically when once clearly shown. This case was in reality an "eye-puzzle"—even to one with a large experience in the solution of eye-problems.

The patient had suffered from severe headaches since boyhood; he had once had syphilis, to which most of his later troubles had been attributed by different physicians; he had a hereditary predisposition to insanity and consumption; he had for many years used his eyes and brain constantly for long hours each day; he had borne great anxieties and responsibilities in his business relations; finally he had collapsed mentally and physically and had been pronounced by a skilful diagnostician, prior to my seeing the patient, as suffering from softening of the brain.

His physical and mental breakdown was preceded for some months by insomnia, constant headache, extreme nervousness and debility. It was attributed by most physicians whom he consulted to his long hours, his great cares, and possibly to some remaining taint of specific trouble. No therapeutic measures proved of any avail and he was instructed to give up all business and to travel. He did so for some months. He returned home rather worse than improved. His constant headache, mental confusion, extreme physical weakness, and insomnia were not relieved.

This was the condition of the patient when I first examined him in my office. He had practically abandoned all drugs for some months prior to consulting me. To publish all the eye-records of this case would take more space than I am justified in giving to it here. In brief, it may be said that by lowering the right eye, raising the left, and relieving a high degree of abnormal tension upon both interni, the eyes were at last brought to a state of perfect adjustment. Perfect health was thus re-established without the use of a drug. The refraction of this patient consisted of a moderate degree of near-sightedness and astigmatism, for which he had worn and still wears glasses.

For the past twelve years, this patient has remained in good health, in spite of business cares and duties that would tax the strongest individual. He sleeps well, has the clearest of intellect, has little or no headache and considers himself as permanently cured by the correction of eye-strain.

Case IV.—Terrific Neuralgic Paroxysms that Anesthetics Alone Could Control.

Miss W., single; aged 18. This patient was known throughout the region in which she resided as the *"screaming girl."* Her piercing shrieks when attacked with general neuralgia, that occurred very frequently, could be heard for long distances in the quiet of the village where she resided; and all the physicians who were consulted could find no remedies but morphine and anesthetics to control the paroxysms. *She suffered constantly from headache.* When I first saw her, her vision was so poor that she used her eyes but little, and wore glasses which had been previously ordered by an oculist. She had then some evidences of conical cornea, but could get 20-70 vision with the glasses she was using. No modification of these glasses seemed to improve her vision in either eye. On testing her eye muscles, it was found that she *had both vertical* and *homonymous diplopia,* viz.: when a red glass was placed before either eye, and the patient was instructed to look at a candle twenty feet away, unconquerable double images appeared at different heights and the image of the right eye deviated to the right.

The surgical steps required in this case to correct the double type of cross-eye consisted in lowering the left eye, raising the right eye and afterward relieving the abnormal tension of both internal recti muscles. To do this several months were devoted by me to the case, with frequent intervals of absence and travel on the part of the patient between the various steps. Since this work was performed, the neuralgic paroxysms have been entirely arrested, and have not returned for over ten years.

Remarks on the Preceding Cases.

Regarding the three preceding cases, I would say, that the science of eye-treatment to-day is not what it was even a decade ago. The presence or absence of equi-

librium (or perfect adjustment) of the ocular muscles can be scientifically measured to-day, as well as the exact arcs of rotation of each eye independently of its fellow, by instruments of precision that were not perfected or used ten years ago. It is absolutely essential to-day to accuracy of diagnosis that such instruments of precision be used, before any opinion is final. It is no longer creditable to any one to hastily decide concerning the presence or absence of heterophoria on one or two examinations. It is impossible in some cases to unearth and positively demonstrate "latent" heterophoria without a large expenditure of time and patience—yet often success or failure hangs upon the discovery of what a patient cannot voluntarily disclose, and which the oculist has to demonstrate by the judicious use of prismatic glasses. Because one competent observer perchance overlooks or fails to find what another may discover, is no excuse for a wholesale condemnation of a method or a groundless prejudice on the part of a disbeliever.

Each case that presents to the general practitioner obscure nervous symptoms where causation is in doubt, is apt to present also to the oculist as well some "eye problem" that cannot be solved in a minute or possiby in a month. Such patients are often unconsciously and incessantly making the best efforts that they can to overcome the defects that oculists may be looking for in ocular adjustment. These have probably existed from birth, and the patients have been trying all their lives to overcome them. Just as a man unconsciously acquires a gait to make a short leg less apparent when walking, so victims to eye-strain are often able to simulate a closer approach to "orthophoria" than they really possess. The oculist of the largest experience in the investigation of such cases is the most apt to solve perplexing eye-problems first. I have, for example, worked two months or more over the puzzling eye-tests of some epileptic patient who presented a very complex eye-problem to decipher before I felt sure which muscle of the eye I should first readjust; while in some other cases the line of procedure would become to me equally apparent and perhaps more positive after five minutes of testing the eyes with a plain red glass.

Case V.—Complete Nervous Prostration with a Total Loss of Emotional and Mental Control, Sleeplessness and Headache.

Miss B., aged 40, single; lecturer.

Family History.—One sister was over a year a victim to "complete nervous prostration." Father is a very nervous man.

Eye Defects.—Vision 20-20, without atropine. Under atropine, a latent hypermetropia of +0.75 s. in each eye. Patient had never used a glass for reading, but accepted +1.50 spherical glass. Esophoria 3° (which ultimately, under influence of prismatic glasses, exceeded 7°). Adduction, 23°. Abduction, 5°. R. sursumduction, 1°+. Left sursumduction, 2°. The adducting power later on exceeded 43°, and the abducting power fell below 3°. At no time did homonymous diplopia disclose itself (with or without a red glass).

History of Case.—This lady had for some years been doing an excessive amount of mental work. Her profession required an enormous amount of reading. This had been done largely at night. Although small in stature, she had always been vigorous and had taken an unusual amount of exercise. She *had always considered her eyes very strong,* and was loath to believe, when she first came under my care, that her eyes could constitute a factor in her serious nervous condition. Furthermore, she was strengthened in this belief by the fact that she had not long before consulted an oculist of prominence, who had stated that he found no defect requiring treatment or glasses, and who had sent her to one of his friends (a specialist in nervous diseases) for treatment.

The "break-down in her health" began about twelve months before she came under my care. It was attended with an extreme and persistent loss of sleep, loss of emotional control, an utter inability to read or sew (any attempt at the latter always aggravated all her symptoms), a more or less constant headache, an inability to concentrate her intellectual faculties for any length of time, and an aggravated type of mental depression.

She feared, and had every apparent reason to fear, that her professional labors were imperiled, and that her mind might possibly give way. The neurologist, who endeavored to build her up by tonics, rigid diet, rest and the like, assured her (after some improvement had occurred) that he feared at first that "melancholia" might be the end of the case. At his advice, she spent the summer at the seashore; but, beyond a certain point, she failed to progress satisfactorily, and her headache and sleeplessness would at times be as bad as ever. Any attempt to prepare herself for her fall engagements would cause a return of her old symptoms to a very marked degree, accompanied by physical weakness, mental fatigue and depression, extreme despondency, and a lack of control over her emotions. After any attempts at study, she would frequently lie awake most of the night. This was her condition when she first came under my care.

Treatment and Results.—In this case a full correction of the hypermetropia was made for distance, and +2.00 spherical glasses were given for reading, as she showed some failure of accommodation. Prisms of various strengths were employed over her distance and reading-glasses for about two weeks, and 7° of latent esophoria were found to exist. This was rectified by a graduated tenotomy of one internus and the prisms were then discontinued. During this interval the patient had improved very rapidly, had become very dependent upon the spherical glasses, and become cherful and hopeful of recovery. She had, moreover, entirely regained the normal power of sleep. During this interval she had frequently slept twelve hours without awakening and without recourse to any drug. As atropine had been used during the early part of the treatment, she had been allowed during the two weeks of treatment to use her eyes very little in reading or study. During the following two weeks, two degrees more of latent esophoria disclosed itself. For the relief of this defect a prism was combined with the spherical glass worn over the eye which had not been subjected to a tenotomy.

This patient soon became able to fill all her engagements without any return of her bad symptoms. She has since read and studied at night, attended church and places of amusement that previously she dared not attend, has accepted more work than for some years past, and has continued to sleep well and enjoy perfect health. She has taken no medicine, nor has she been restricted by me in her diet or in any other

way. Her reading glasses have been increased to +2.50 s.

The records of her case show that a graduated tenotomy of the internus of the uncorrected eyes will eventually have to be performed, in order to properly adjust the balance between the two eyes.

During one of her last visits this patient said: "I think I am stronger to-day and have better health than I have had for many years. I certainly do my work with less fatigue, and enjoy things that my ill-health has previously debarred me from."

Common Symptoms Entailed by Eye-Strain.

The histories of the five preceding cases illustrate most forcibly the important clinical fact that eye-strain alone can produce the following symptoms: *Constant and intense headaches; loss of sleep; confusion of intellect; melancholia; hopeless nervous-prostration; paroxysms of intense neuralgia;* and a *loss of emotional control.*

They also show, beyond the possibilities of dispute, that the *complete relief from eye-strain was the avenue of complete cure.*

In June, 1904, I published in the New York Medical Times, the clinical histories of eight cases that show, in addition to the immediate relief of the distressing symptoms mentioned above, some equally startling results from eye-treatment in the relief of *epilepsy, St. Vitus' dance,* and *reflex paralysis.*

In my work, entitled "Eye-Strain in Health and Disease," * I have tabulated the histories of nearly three hundred cases that owed to eye-treatment their recovery from headaches, neuralgias, St. Vitus' dance, insomnia, digestive disturbances, epilepsy, insanity, and nervous prostration.

The clinical histories of the cases which follow are peculiarly instructive to those who still question the possible relationship between eye-strain and some types of nervous derangement that are commonly regarded as organic in origin.

The first of these (Case VI.) is one of the most remarkable instances of complete restoration to health that has ever been obtained from an apparently hopeless condition. It is likewise one of the most instructive cases ever presented to those who are to-day apathetic regarding the detection and relief of eye-strain in obscure cases of extreme nervous derangements. This patient could not dress himself properly, nor would he even swallow until told to do so.

Fifteen years of uninterrupted health have attested to the permanency of this remarkable cure. The patient has gained some fifty pounds in weight. He has never had the slightest relapse of the sad condition in which he was when I first saw him in my office.

Case VI.—Absolute Mental Failure. Previous Diagnosis of Cerebral Softening. Perfect Recovery after Relief of Eye-Strain.

The records of this startling case were originally published by me in my work on eye-strain. It is one of the most wonderful recoveries, I think, on record. It certainly teaches that we, as physicians, *can all be mistaken in making a positive diagnosis of organic disease.* This patient is seen by me almost every year, whenever he visits New York. His recovery was complete and is permanent. He now weighs over forty pounds more than when I first saw him, thirteen years ago; and he is to-day in perfect health physically and mentally.

Mr. P., aged forty-one, manufacturer, married. Sent to me for confirmation of his diagnosis of cerebral softening and for suggestions relating to treatment, by Dr. B., of Toronto, Canada, on May 30, 1889. This pitiful sufferer was led into my office (as a child would be led) one morning by his wife. From her I obtained the following history: It apparently justified fully the suspicion of advanced softening of the brain held by physicians who had been consulted.

The wife gave to me these details that bore upon the diagnosis and hopeless prognosis: There had been steady emaciation and mental failure for many months. Gradually the patient had become like a child in mind; had to be cared for like a child by his wife; had to be told, when dressing, what clothes to wear and which to put on first; had to be fanned while sleeping in short cat naps every day until about noon, because of persistent insomnia; and had not visited his place of business or even paid his bills for over six months. At the table, *he would chew food indefinitely until told to swallow.* His demeanor was extremely apathetic, except at intervals, when he would become excited, start suddenly from his chair, seize his head in both hands, and pace the floor, exclaiming about the intense pain in his head.

Prior to his mental failure, he had suffered for twenty years with neuralgic attacks in the left eye and left side of the face, and also from flowing of tears over both cheeks in cold weather. For six years he had lived on a restricted diet on account of constipation, flatulence, gastric pain, and other symptoms of indigestion. His persistent sleeplessness added greatly to the care of this patient. He could not stand the excitement of a public hotel; hence he was forced to lodge with friends in an extremely quiet neighborhood of Brooklyn, and to come to my office daily in a carriage while I was endeavoring to get any satisfactory eye-tests. It took nearly a week to get these, because the patient became too excited and uncertain in his answers to make the tests positive at first.

The case looked most unpromising to me. I could not divest myself of the firm conviction that organic brain disease existed, and that the case was probably incurable.

Eye-Tests.—The use of atropine to dilate his pupils quieted this patient to such a degree that I obtained at last, positive evidences of a marked hyperphoria (the left eye tending to assume a much higher plane than its fellow in the orbit). He also showed errors of refraction, as follows:

O. D. V. 20/20 given by +0.75ˢ +0.75ᶜ ax. 90°
O. S. V. 20/30 given by +1.25ˢ +1.00ᶜ ax. 90°

For the relief of this refractive error, he was eventually induced to wear glasses, after his mental condition had been improved.

Treatment and Results.—I advised the wife to seriously consider the advisability of a graduated tenotomy upon the left superior rectus muscle as a step toward the correction of the 4° of "manifest hyperphoria" that the patient disclosed. I distinctly impressed upon the wife the fact that I did not think this step would prove curative; yet I could not but feel that the hyperphoria was a strain that ought to be at once removed—especially from so weak an invalid. I assured her that there was little ground for hope of

* F. A. Davis, Philadelphia, publisher.

recovery, but that the patient would probably have less pain and sleep better after the correction of the hyperphoria.

I mention this because the complete recovery of this patient was as much of a surprise to me as to others. The rapidity of recovery was almost beyond belief. In my professional life I have never seen anything that caused me so much astonishment in the line of prompt result from an operative procedure.

With the consent and expressed desire of his wife, I performed a graduated tenotomy upon the left superior rectus muscle. Immediately after the operation, the patient showed no hyperphoria; esophoria 0° to 3°; adduction 25°; abduction 8°; right sursumduction 4°. left sursumduction 4°. He was placed in a carriage and taken to Brooklyn.

Now came the remarkable changes to which I have previously referred as startling. The entire night following the operation, he *slept without awakening*—a thing unknown for years. He arose the following morning, and (after dressing himself without aid) drank three goblets of milk before the rest of the family were up. He then sat down and ate a good breakfast, finishing as quickly as any of the family. Within a week he demanded his money from his wife, saying that he would not have her pay bills for him. In a very short time he came daily from Brooklyn to my office without any one to accompany him. Two weeks after the operation, he wrote a letter (the first in over four months). He began to read the daily papers, continued to sleep and eat well, and within a month almost entirely regained his mental faculties. A full correction of his refractive errors was then ordered; with instructions to wear his glasses constantly.

Some weeks later, I decided to perform a second graduated tenotomy upon the right internal rectus muscle for the relief of a latent esophoria that had disclosed itself. Soon after this operative step, the patient returned to his home in Canada.

He has been seen by me only at infrequent intervals since that time. He soon resumed control of a large business; gained over forty pounds in weight within a year; has taken no drugs; and is absolutely well to-day. There has never been a relapse of his former condition since the first operative step was taken on the left superior rectus muscle of the orbit.

At no time, for the past fifteen years, has this patient ever experienced a relapse. The relief of eyestrain effected a complete cure.

Reports from all parts of the British Empire show, says the *Journal of the American Medical Association*, that the anti-mosquito campaign is being carried on with the most gratifying success. At the opening meeting of the Royal Colonial Institute, Major Ronald Ross pointed out that in the once deadly colony of Lagos, thanks to the zeal of Sir W. MacGregor, the Governor, who is a doctor, malaria has lost its terrors. The difficulties to be contended with were great, for Lagos itself is built on a low, swampy territory, and surrounded by dense forests. But perhaps the most striking and rapid results have been obtained at Ismailia, on the Suez Canal. In a little over six months one class of mosquitoes was practically banished from the town, and coincidentally the amount of malarial fever diminished. In the first six months of the present year there were only three cases in hospital, against fifty-two for the same period of last year.

THE TRANSMISSION OF PHTHISIS, WITH A STUDY OF MEDICAL GEOGRAPHY.

BY N. E. BARRETT, M.D.

SOME authorities claim that the transmission of phthisis may take place before conception, the tubercular bacilli being associated with the sperm or germ,—but this is a purely hypothetical idea,—or through the medium of the placenta, and, therefore, solely by the maternal blood. There is not such positive proof of the infection of the maternal blood, and of transmission of disease to the foetus in the case of tuberculosis, as there is in anthrax, syphilis and variola. Moreover, in ordinary phthisis fully one-half of the cases do not exhibit, in the presence of remote secondary lesions, evidence of blood infection. It is for the most part a local disease of the lungs, and such secondary lesions as do occur may be explained in many cases apart from general blood contamination. The fact of the lung being the primary seat of tubercular disease in inherited cases is almost conclusive against the congenital theory; for if the foetus were infected through the blood the chances are that the lungs would not suffer more than any other organ. Cadeac and Malet consider primitive tuberculosis of the lungs to be due to the inhalation of particles of dust loaded with tubercle bacilli derived from desiccated sputum. From a series of careful experiments on animals they conclude that healthy animals, as well as those affected with catarrhal inflammation of the air-passages, breathing air exhaled by tubercular patients do not contract disease. Animals living in the same atmosphere with tubercular animals for two or three months did not contract the disease, notwithstanding an existing predisposition. Two rabbits out of three cohabiting with tubercular rabbits contracted the disease. Inoculations of condensed vapor from tubercular sputum produced negative results. The condensed vapor of the atmosphere in two hospital wards occupied by phthisical patients was inoculated upon twelve rabbits and guinea-pigs, producing tuberculosis in two cases. Trudeau believes, from his researches and experiments on the subject, that though environment may bear but the relation of a predisposing cause to microbic infection, it is, nevertheless, a potent factor in determining the future type, and even the final results of the disease; and that if we may not underestimate the pathogenic properties of the bacillus, the effect of extremes of environment on the resisting power of the cells of the body is an element in this complex problem which should not be ignored. Mays has analyzed, some years ago, the records of 400 cases of pulmonary consumption, and shows: (1) That not all the members of large families are equally vigorous and alike resistant to pulmonary consumption, and that, as a whole, they are less vigorous than those of small families. (2) That the youngest members of numerous families, provided their parents are healthy and come from small families, are most liable to pulmonary consumption. (3) That the youngest and the oldest members of small families are liable to pulmonary consumption, while the intermediate members are less susceptible to it, even though the parents and grandparents were healthy and became aged; provided that either or both parents come from the youngest members of numerous families. (4) That children born of parents having phthisical antecedents are subject to the same law of liability as those

children whose parents are healthy but come from the youngest of numerous families, with the exception that it is not necessary for one or both parents to come from the youngest of their families. (5) That those children who are born within a year after the birth of the preceding members are more liable to pulmonary consumption than those who are born two or three years apart. (6) That children born of phthisical parents are liable to pulmonary consumption three years earlier on the average than those born of healthy parents. (7) That parents with family history of consumption are less prolific by nearly one-half than those who are healthy. (8) That, given a patient coming from a numerous family, of which the parents came from medium-sized or small but healthy families, we can predict that the patient is the youngest or one of the youngest of the family; or, given a patient coming from a small family, of which the parents came from numerous families, and were among the youngest but healthy, we can predict that the patient either belongs to the youngest or the oldest, and not to the intermediate ones of his family; or, again given a patient coming from a small family of which the parents came from a numerous family, but who have a phthisical history, we can predict that the patient belongs to either the older or the younger members, provided the patient's parents are not the youngest of their families; if they are the youngest, then the intermediate members are not exempt, although even then more so than those of either extreme. Buckler has advanced the theory that excessive summer heat is the active producing cause of tubercular phthisis pulmonalis, including tubercle in whatever structures or tissues it may be found. As a proof he states that true acute consumption, a disease lasting from fifteen to thirty days, occurs during or immediately following a heated term; Boyland also believes in this theory, and thinks it strange that it should have escaped the observation of German scientists, who, although they record a higher rate of mortality from acute miliary tuberculosis after an exceedingly hot summer, attribute the cause to the succeeding winter, and not to the preceding summer. We know now that tuberculosis virus possesses such powers of resistance that it retains its activity in water, in putrefied matter, on the surface of objects, in spite of desiccation, of variations of temperature, and even of congelation; therefore, secretions of phthisical patients and of tuberculous animals are a source of contamination and danger. He concludes that it is urgent to exact complete disinfection of all objects sullied by tuberculous animals, of their excretions, of the localities occupied by them, of the litter and dung proceeding from them, etc., in order to prevent dissemination of the disease and its communication to man. Tuberculosis is most frequently contracted from a tubercular person through the sputa, glands of the skin; by kissing or fondling the patient, handling his linen, etc. He does not believe in the theory of heredity. Butel, a veterinary surgeon of Paris, thinks that the danger of contagion from animals is not sufficiently appreciated, and that the utmost energy should be exerted by the authorities to counteract this danger. Drs. Spillman and Haushalter state that they have seen flies enter the spittoons containing the sputum of phthisical patients; the flies were caught, placed in a bell-jar, and on the following day some of them were dead. Examination of the abdominal contents and the excrement showed presence of many tubercle bacilli. The authors point out the wide dissemination of the disease which may take place in this way. Dr. Lamalleree related a very remarkable case of infection of tuberculosis from hens. The patient, a young woman whose antecedents could not lead him to suspect tuberculosis, but who, nevertheless, was suffering from incipient phthisis, incidentally mentioned that she had partaken of as many as eleven slightly roasted chickens obtained from a neighbor. This neighbor was a phthisical person, for whose spittle the remaining chickens always eagerly fought. The doctor came to the justified conclusion that his patient had contracted the disease from these hens who had feasted on the sputum of a phthisical woman. Destere and Slosse state that from inquiries and observations made in Dr. Desmeth's wards it was found that, of 50 patients suffering from tuberculosis, contagion could be regarded as an undoubted etiological factor in 12, heredity in 30; no cause could be traced in the remaining 8. According to Hirsch: (1) Death rate from phthisis is about 3 in 1,000, or nearly one-seventh of the total mortality. (2) The mortality from phthisis is relatively large in the large centres of population, viz.: Vienna, 7.7 per 1,000, nearly twice the general average; Pesth, 6.9; Brussels, 5.6; Stockholm, 4.1; Munich and Glasgow, 4; Berlin and Dresden, 3.8. (3) There is an increased liability to phthisis with rapid growth of population, and especially with the massing together of large bodies of workers engaged in arts and manufactures. Impure air and bad hygiene are more important than heredity and imperfect nutrition. Among nomad tribes, such as the Kirghiz of Central Asian Steppes or the Bedouins of Arabia, the disease is unknown until the people settle in towns. (4) Geographical position has less influence than generally supposed. Phthisis is virulent in many warm countries, and the negroes, the West India Islanders and the South Sea inhabitants suffer more in proportion than the people of Europe. Italy and England have the same death-rate. The Hebrides and the Faroe Islands are almost entirely free from the disease. (5) Latitude had an influence upon the prevalence and type of phthisis. It becomes rarer as we approach the poles. In the tropics the disease is not chronic, but approaches the severity and brevity of acute tuberculosis. (6) Altitude is very potent. On the higher Alps, the Andes, the elevated plateaux of Mexico, Persia and South Africa, there is almost absolute immunity. Large populations, bad hygiene, and occupations which at lower levels are active assistants in promoting this disease, are here almost powerless. Switzerland has 1.86 to 1,000 mortality. Santa Sirene gives the death-rate from phthisis in Italy as 2.4 per 1,000 inhabitants, for Berlin 3.1, and for Vienna 7.0. Dr. Washington Matthews, who has spent 21 years among the Indians of a dozen different states and territories, states that the number of deaths from consumption (U. S. census of 1880) is: whites, 166; negroes, 186; Indians, 286. Under the influence of civilization, the endeavor on the part of a savage race to accustom itself to the food and habits of an alien, more advanced race, consumption increases, and we realize that climate has no calculable factor in this increase, yet the studies of climate are absorbing.

Haviland, in 1868, began the study of medico-geography. In his case this included the study of the geographical distribution of heart disease, cancer, among

females, and phthisis, among females, in England and Wales, but especially in the counties of Cumberland, Westmoreland and the Lake District.

Later a general description of the area, including its coastal and inland boundaries, hydrography, physical geography and heology, populations, and lastly, its general and local meterorology and climatology. Then he studied the geographical distribution of the following groups of diseases and causes of death: Diseases of the heart and circulatory organs; Malignant diseases under the head of canceer; Tubercular disease of the lungs under the head of phthisis. Then he examined the distribution of certain hitherto uninvestigated disease-groups, which have appeared to the author as likely to throw additional light upon the effect of local climates on medical geography, as determined by the physical configuration, geological and other characters of the registration districts comprised within the area under consideration. These added groups of causes of death are: Diseases of the stomach aand liver, diseases of the kidneys, and, even the fatal diseases and accidents of childbirth.

As far back as 1849, during the autumn of which year Haviland had the medical charge of his native town, in the west of England, at the time of the direful visitation of Asiatic cholera epidemic of that year, he undertook to attend to all the cholera cases, whether paupers or not, that occurred in a borough of 12,000 inhabitants. This epidemic lasted nearly four months, and during that time two hundred and eight deaths from cholera and choleraic diarrhoea was registered, making the deaths from these causes alone equal to an annual rate of 57.7 per 1,000. He was taking at the same time meteorological observations not only at the usual regular periods, but at various times of the day and night, as regards the winds, and among the results he noticed the following coincident facts:—(1) Whenever well established calms prevailed over the infected area, there was at once an increase in the number of fresh cases of cholera; (2) On the other hand, whenever the air was disturbed by equatorial currents, from south to west by southwest, blowing strongly, the number of fresh cases from cholera was immediately reduced; (3) These opposite conditions of the atmosphere alternated several times with each other, and invariably with the same effect on the lists of fresh cholera cases. The year 1848 had been a memorable one among meteorologists from the fact that Schonbein then first made his discovery how to detect ozone in the atmosphere by means of white blotting paper saturated with a solution of potassium-iodide and starch. In England, during 1853, a corps of observers formed, and Haviland was among the first who joined, and he very soon found that the "calms" and "strong equatorial winds," which had been noted in 1849, when tested by the ozone paper, produced very different effects on it; for during calms the little white slip of paper would hang for days without indicating any ozone in the air by turning brown; whilst, on the other hand, immediately the wind blew strongly from the southerly quarters named, it would assume a dark-brown color, and when immersed in water, reveal the beautiful dark violet hue from which iodine derives its name. In 1855, with the view of bringing before brother medical practitioners an epitome of the observations of Hippocrates, he published his first work on "Climate, Weather and Disease," in which, amongst other subjects, the mortality from phthisis in relation to atmospheric temperature was considered.

The matter lay quiescent for over ten years, until in the early part of 1868 there occurred on the platforms and in the carriages of English railways many startling sudden deaths, attributed by medical witnesses at the inquests to "heart disease," death having been accelerated by hurrying to catch the trains. The effect of railway traveling, and of the hurry consequent on it, was discussed at once by medical men, medical journals, as well as by the public and general press, especially in reference to the supposed increase of mortality from this cause, as a sequel to the altered mode of traveling; the substitution of the more headlong train for the leisurely stage coach; this alleged increase in the death-rate from heart disease was popularly supposed to be particularly marked along those lines of railway radiating from London, on which so many merchants, clerks, and others had their residences. Haviland then in 1868 gave the results of investigations as to the geographical distribution of heart disease, which had been undertaken in order to test the soundness of the prevailing opinion, that the new mode of traveling by railways was the cause of the supposed increase of that cause of death. He found that instead of the "high mortality districts" being in the course of the railways radiating from London and other large centres, they were to be found chiefly in those parts of the country characterized by the "stuffy valleys" of Hippocrates, where stagnation, rather than hurry, prevailed, and where atmospheric "calms" were most frequent, and where the "struggle in life" was least.

Haviland believed this investigation should be made under these heads: (1) To ascertain the geographical distribution of a disease is the first step toward a knowledge of its natural history, as it is in that of the fauna and flora of a district, a continent, or of the world. (2) Thus to discover where diseases prevail, and where they do not thrive. (3) To search for, in those localities, the causes of prevalence, or absence, or scarcity, whether they reside in their local airs or waters, or are due to general or local climates, geological structure, physical configuration, or social surroundings.

For registration purposes, England and Wales were divided into 11 registration divisions, 44 registration counties, North and South Wales being reckoned as two, and 623 registration districts. In studying disease-distribution Haviland found that the river-valleys are the chief means by which the largest communities have their atmospheres changed, and those valleys lying in the direction of the most frequent or prevailing winds will enjoy the most complete renewal; and as it so happens that the course of the tidal wave on the western coast throughout, and on the eastern for nearly three-fourths of its extent, coincides with that of the prevailing winds, the consequent influx of waters up the river-valleys twice in every twenty-four hours must contribute to the movement of the air in the valleys, and in times when the winds do not blow up them must tend to mitigate the evils of still air. These primeval inlets up which the mammoth and his companions traveled when they first discovered this land, are now, as they were then, the channels by which the country was purged of its residual air. In those days, however, the winds were not sea-winds on the eastern side, as they are now, but intensified continental currents, although those named

on the west coast came straight from the Atlantic over Ireland. The river-valleys that open on the southern valley, it has been stated, do so more or less at right angles to the prevailing winds and tidal waves, and necessarily cannot facilitate the entrance of either wind or wave to the interior; the winds passing over, not up and through them, and the waves their mouths in its course of least resistance. The geographical distribution of heart disease and the circulatory organs in England affords the best illustrations possible of the value of a sound knowledge of ventilation; and points to the fact that wherever the facilities are greatest for constantly changing the air, there is, coincident with facilities, a low mortality from heart disease, and that where the conditions are reversed, as in pent-up valleys, badly arranged and unventilated streets, the results are reversed, as evidenced by the high mortality. These river-valleys are also to be considered in connection with the rivers that made them—their length, nature of their beds, whether they are fully formed, flood their riparial districts seasonally, or whether they are torrential in their character, and, if they flood their valleys, only do so temporarily; the geological nature of the formations through which they have cut their way to the sea, whether they are retentive, like clays, or permeable, like chalk and sands. It will be presently seen (1) that, during the ten years, 1851-1860, the highest mortality among females from malignant disease, registered under the name of Cancer, was to be found in those districts that are riparial to rivers that seasonally flood their adjacent lands; and that, on the other hand, the lowest mortality was to be found in those communities enjoying high, dry conditions on the older or palaeozoic rocks, especially the carboniferous-limestone, and on the secondary, such as the oolitic limestones and chalk, or where the rivers are torrential in their flow, and only flood their adjacent areas temporarily, and at long intervals.

In regard to phthisis, in these river-valleys, even when a certain amount of soil dampness prevails, shelter was found against the strong winds, and, coincident with their protective influence, low mortality from this fatal disease was the rule; on the other hand, in the valleys or on the hillsides exposed to the full force of the winds whencesoever they came, there was to be found the highest mortalities coincident with those conditions of the climate.

The student of medical geography must study the physical configuration of the land. The river-valleys are not only water-courses, but act as ventilators more or less perfectly according to their direction in relation to the prevailing winds. Then the nature of the rocks out of which these valleys have been cut, their elevation above sea level, and their physical characters will have to be studied in their relation to the floods to which they may be subject. The effects of floods on the soil, arising from vegetable decomposition, and upon the atmosphere of the district, are important subjects for the student. In this part of his study the distribution of cancer will afford him abundant material for patient investigation. Lastly, the shelter afforded by valleys to the consumptive, and the low death-rate from this cause in some that are notably well protected from the influence of strong winds, will afford the reader abundant food for contemplation, especially when studied in connection with the effects on the mortality from exposure to the full force of the winds. The question is, Is it the simple force that is the fatal element in these winds, or is it some other, such as ozone, which finds its way straight to the tuberculous matter, attacks it, inflames its surroundings, and sloughs it out, killing the host, just like the lymph of Koch, which, when injected, is said instinctively to rush off to seize its quarry, tubercle, whether it be in the lung of the consumptive or on the skin of those suffering from lupus.

1. "A map of England and Wales, shows of the eleven great divisions, two-thirds of those divisions which had an extensive sea-board had a low mortality from heart disease, coincident with such marine boundaries.

2. "It also showed that the two divisions which had little or no sea-board, but, on the contrary, were surrounded on all sides by other divisions, had a high mortality from heart disease.

3. "It further showed that the coastal divisions which had a high mortality from heart disease had also coincident with it certain physical characters which obstructed the free passage of the prevailing winds up the inhabited valleys and river-courses."

NATURE AND TREATMENT OF CHRONIC GLANDULAR ENLARGEMENT IN CHILDREN.

BY A. N. ULRICH, M.D.

IT IS a curious fact in pediatrics that, while children are especially exposed to trouble in the lymphatic glands, yet the condition is rarely primary in character. We must remember that of all the systems the lymphatic is the most vulnerable to attack in childhood, yet primary diseases of this system are rare, such as sarcoma or lymphadenoma. On the other hand, secondary lymphatic disease is most common in actual practice. It is difficult for the clinician and pathologist to define exactly what is a simple inflammation of a gland and what is more. The constitutional tendencies of the child affect the inflammation from its onset to its termination, and both suppurative and chronic forms of adenitis can generally be traced to some local exciting cause, acting upon some branch of the lymphatic system. What is more common than to see injuries to the foot or leg followed by glandular enlargement in the femoral region, or disease of the genital organs to involvement of the inguinal glands; yet in some cases we find that enlargement of the glands may follow an illness without any especial local irritation or involvement. Here, undoubtedly, the irritating cause has been circulating in the entire system until it affects the glandular organization.

There still clings to children with marked tendency to glandular enlargement the old-fashioned terms "strumous" or "scrofulous," and, despite modern advances, the terms cover a ground that no other words reach and convey an impression that is at once clear-cut and sharply defined. Parker has defined "scrofula to be a constitutional condition manifesting itself in a special tendency to chronic inflammatory affections, especially of the lymphatic system and glands, which are very easily set up, difficult to arrest, and frequently terminate in tuberculosis." This definition is as good as any that can be devised for this condition. There is no doubt that constitutional peculiarity is an important factor in glandular disease. Some children react to the slightest stimulus to their lymphatic systems; acute adenitis quickly manifests itself; the glands inflame quickly and

suppurate as rapidly. Especially is this true of the glands of the neck, which is peculiarly unfortunate, for it causes considerable disfigurement, if not actual deformity. This region is exposed to attacks of adenitis, owing to the very large supply of glands here and also to the fact that the neck is exposed to many forms of irritations.

I believe thoroughly that scrofula is simply an inherited debility of tissues. I believe that this tendency, once acquired, is most difficult to dispose of, and it is a factor that affects all children's conditions and diseases. Yet the conditions under which scrofula generally develops may be most varied, for it is found in rich and poor, the well fed and the starved; so common in reigning families that it was called "the king's evil," and yet it exists in every alley of every large city. Still, scrofula nowadays, in the light of medical progress, is growing to be a disease of the poor rather than of the rich, owing to our abilities to remove and alleviate disturbing factors, and of course the poor cannot acquire these measures in full as yet.

Nature has provided more or less of a cure of her own in acute cases, for when the irritation is very acute the glands usually suppurate quickly and discharge their contents without aid, curing themselves; but not in all cases, for, owing to proper care, sometimes this inflammation subsides into a chronic inflammation affecting neighboring glands, which become enlarged, undurated and resistive to treatment. If you remove some of these enlarged glands you may fail to find anything but simple hypertrophy, with no signs of cascation or tubercle. This may be true in glands of six, twelve or eighteen months' duration.

Generally, however, the glands caseate in a few weeks or months, but they may or may not suppurate and may or may not show signs of the tubercle bacilli. The great practical, living problem arises at once: Are all caseous glands tubercular; if so, how can we recognize early those with tubercular tendencies from those without? It is a difficult, uncertain task, with no distinguishing landmarks. Occasionally we suspect such a change, but in many instances the change is so slow, so imperceptible and so insidious that no constitutional signs appear at all and nothing diagnostic is detected.

How often have we seen this phenomenon: Some enlarged glands will remain unchanged in size or character for months or years; then, without apparent cause, a change appears. The glands begin to grow; they become painful and tender, the overlying skin becomes adherent, then red, and breaks down. An examination reveals the existence of the tubercle bacilli. Yet there was no tubercular family history possibly or no immediate determining cause. Or cases are found which clear up without especial reason, without special treatment or change in manner of life. We find in actual practice that many children with permanently enlarged glands seem well and strong; they grow up, and in adult life lose this enlargement and appear perfectly healthy men and women. We must assume that an unsuspected cause of trouble has been cleared away and the glands undergo retrogressive changes.

The exanthematous diseases are fruitful sources for glandular trouble. In measles and scarlet fever there is a strong tendency to affect lymph glands, not merely those which are visible and external, but the deeper glands as well. At the appearance of the exanthem there is considerable glandular enlargement; then generally this enlargement subsides, only to reappear later, often a slow, chronic, painless condition, with the glands always in evidence.

We must remember that the caretakers of children suffering from exanthematous diseases often get mild infection of their glands; it is well to watch carefully the nurses, the mothers and attendants of these cases for some such symptoms.

I will report two cases which seem to me to be illustrative of this condition typically. The first is a little boy about five years of age who came into observation on account of enlarged lymphatic glands in his neck, some of them being quite large. On examination it was found that this region was filled with enlarged glands back into the occipital region downwards to the clavicle and below it, also into the axilla. There seemed to be no especial reason for this condition. There was good family history, and the child otherwise was free from this condition. In looking for a cause of irritation I found that the boy was affected with adenoid growths in naso-pharynx. His mouth was small, his teeth poor, and he had that heavy look that comes with this condition. The child was operated on, the growths in his nasal region removed, he was put on a stimulating tonic and sent on a vacation. The glands in his neck began to decrease in size, his "colds" disappeared, and in a few months he was thoroughly well.

Another case is equally interesting. Another boy of about the same age came under my observation, with a history of scarlet fever some years before, with a history of glandular involvement. Shortly after the fever the glands began to grow, and appeared on both sides of his neck. Otherwise the child was healthy. I could find absolutely no immediate cause for this growth in any way. The glands were subsequently removed, and the child became normal, with no signs of any return of the condition. While it is undoubtedly true that chronic enlargement of glands is due to chronic irritation somewhere, it is often hard to find. Yet success in treatment frequently depends on finding this source of trouble.

There are other possible sources of glandular trouble beside the exanthemata—for example, irritation of the skin of every sort, especially about the scalp, face and neck, or pediculi capitis, either by producing impetigo or without doing so is a common cause. Unhealthy conditions of the gums or teeth are a prolific source of trouble, while chronic inflammation in the naso-pharynx is another cause, as are adenoid conditions in the throat and nose. Conjunctivitis, granular eyelids and other chronic inflammations play their part, while less commonly the irritation comes from distant glands, as has been proved by post-mortems. Chronic enlargement of the bronchial glands, so common in bronchial catarrh, is a common cause in our uncertain climate.

I am a great believer in the building up of nutrition in these glandular cases in early childhood, and believe greatly in milk; but for children with whom milk does not agree give meat juice, broths and vegetable albumen, while for those who require additional fat, olive oil may replace cod liver oil with equal advantage. Next comes inquiry as to the amount which the child can take and the intervals of feeding. Here it is necessary to ascertain the child's appetite. In many cases this is curiously modified by inheritance, for children whose parents have taken but little food comparatively, often manifest the same peculiarity; others are proverbial overeaters, and even in infancy take more than they digest. Again,

hereditary peculiarities of the nervous system influence the child's appetite, for the placid child will take its regular food at regular intervals, with but slight variation, while the nervous child, if fatigued, can eat but little, while at other times it may be ravenously hungry. Appetite should be to a certain extent an index of power of assimilation, and if the infant be studied in its peculiarities he may be trained in habits which shall in a large measure correct his own inherited tendencies. Where children manifest a remarkable lack of appetite it will often be found that it is due to a disordered condition of the digestive tract; but when such is not present the child should be allowed to become thoroughly hungry, given appropriate food, the intervals lessened, and the amount gradually increased. Remember that badly nourished children often have no appetite because of their debility, and that tonics and systematic feeding will often renew an appetite when nothing else will do.

Again, a child's appetite furnishes the safest clinical index for the increase of its food. Beginning with the minimum amount which a child of its weight and age should have, and having established a favorable condition of the digestive tract and regular times of feeding, a child's appetite may then be studied. Successful nourishing of the child requires a variety in the child's food, the indications for variation in diet being found in the establishment of new functions which enable the child to increase its range of digestion, for the establishment of the salivary secretion and the cutting of teeth mark the time when the child may add food to its diet. Soft bread and butter, very light and tender meat, or soft-boiled eggs are generally acceptable and beneficial at this period. But robust children seem to crave variation in food before this period, and while the gums are swollen with the cutting of teeth a healthy child will suck a small chicken bone or chop bone with delight. The common practice of the pasteurizing of milk has brought to notice interesting cases which emphasize the necessity for giving children fruit juices and vegetable food, for cases of scurvy occurring in children fed exclusively upon such milk have drawn our attention anew to the value of orange juice and vegetable soup stock in children's diet. While the albumen of fresh meat is of great advantage, it also gives the child broths whose stock contains the extractive matters from potato, parsley, onion, celery, turnips, and sometimes carrots; in summer, soups made with fresh corn or from fresh peas furnish a very agreeable and beneficial food. Children often do badly because those who have charge of them fail to appreciate this fact—that they require change of diet at various seasons and at the different stages of their development. In spite of this care, a child's food may be properly selected and prepared, given in proper quantities and at the right time, and still nutrition may be wretched. Children are far more susceptible to the manner in which they are fed than their elders often suppose. Put a child in an uncomfortable posture, let its food be too hot or too cold, or given from a spoon or vessel which imparts an unpleasant taste, it is no wonder that the child does not thrive. Those who prepare food for children should invariably taste their preparations, then some instances of apparent loss of appetite might be readily understood. Young children appreciate cleanliness, and soon cease to relish food given from dirty and tainted plates or spoons. A pleasant, cheery manner, a strong, firm touch, and the tact required to make a little child comfortable will often secure the taking of food, while the absence of these qualities may have the opposite effect. The food having been properly and successfully taken, the very important process of digestion and assimilation then demands attention; the rule should be absolute to follow nature strictly, for no animal after undisturbed feeding will do anything but remain quiet if unmolested. In young animals, sleep usually follows feeding, but repose is the invariable law. The same procedure is absolutely demanded by the child. So soon as feeding is done, the child must be made comfortable as regards its clothing and surroundings, and be left absolutely undisturbed, if possible, for an hour. Such simple treatment will prevent colic, and secure the successful assimilation of food, while it is the natural impulse of those who have children to amuse the child whenever it is awake. No greater error can be made than to disturb the digestion of children by interfering with them after feeding. If a beginning is made in infancy, the child can be trained to lie quietly after taking its food without being disturbed and without disturbing others. Nervous children, so called, when treated in this way, speedily lose much of their abnormal sensibility, and begin to gain at once. Children are often scantily supplied with water, because, as the child's food is often largely liquid, it is supposed that water is not necessary, but much of the restlessness which children display at times can be traced to thirst, and when relieved, the improvement is immediate and noticeable. The influence of fresh air in promoting the nutrition of children is a common observation with those who see city children transported into the country or to the seashore. A sick child properly fed and kept at absolute rest in the open air generally improves. Remember that the assimilation of nourishment may be powerfully promoted by massage, accompanied with rubbing into the skin of nutritious material, such as olive oil alone, or in combination with alcohol.

Inunctions with cod liver oil are beneficial, and an increased amount of oil can often be given by combining it with a small quantity of tincture of green soap, while the absorption of olive oil is promoted by combining it with alcohol, two parts oil to one of alcohol. Oftentimes the child may have a salt-and-water sponge-bath, followed by gentle massage with oil. In these cases the absorption of the fat is greatly promoted by the preliminary bath.

I am a firm believer in young nurses for children, for few old women have the physical strength and patience to care for a young child, but even putting aside the element of physical strength, the little child should be surrounded by those who are strong and vigorous. The best child nurses are between twenty and forty, and such seem often to impart a portion of their own vigor to their patients. When physical strength is coupled with a natural mothering instinct, the result is most satisfactory in promoting the growth and nourishing of children. The value of baths in promoting nutrition is often overlooked in dealing with children. In cases of ill-developed children with sluggish circulation, cold skin, and imperfect digestion, baths with friction are of the utmost value. The full bath is not borne as well as by adults, but children are greatly benefited by uniting bathing with mild massage such as any one can give.

Few children can bear a cold sponge-bath, and by

far the best results are obtained from a warm sponge or from the use of tepid water, while alcohol and water, or dilute ammonia and water, furnish excellent baths, allaying restlessness and securing sleep; for this reason the bath should be warm and should be taken at bedtime. Sea-bathing should be used most cautiously by children. A locality must be chosen where the water is not cold, and the child must not be exposed to the full force of surf. Children should seldom bathe when the sun is not shining, as a chilly and damp atmosphere is most depressing to them. The hour of noon is an excellent one for the child's bath, and it should rather play in the salt water and upon the beach as long as it is in motion and in the sunshine, but only a vigorous child can spend from fifteen minutes to half an hour to advantage in this way. A short time is generally sufficient. The child should be taken to its bedroom, thoroughly rubbed and dried, and given a small amount of easily-digested food. It should be put to bed, and made to remain in bed for an hour. This applies to all children up to twelve or fourteen,

The nervous system affects tremendously the nutrition of children, for every one who has to deal with children has noticed how assimilation is stopped by a fit of anger or fright. Many children are ill-nourished due to the ill-temper of a bad child's-nurse who vents her impatience upon her little charge, or the careless nurse who does not give the child sufficient time to take its food, but hurries it away for her own convenience. The rule should be an invariable one with children that they be fed slowly and without annoyance, and that they remain unmolested for one half an hour to an hour after a meal. A parent is neglecting its duty not to watch children carefully. Bodily warmth is necessary to secure the proper action of the nervous system in digestion, and an important factor in connection with the nourishment of children lies in the formation in the child of proper habits of eating. When the child's natural appetite is recognized, it is often found that it has no taste for articles of food which would be most advantageous for its use. In these cases it is very important that the child be taught to eat properly. The best and simplest way to accomplish this is to give the child that which is best for it, and to give it nothing else. It may eat sparingly for a few meals, but will ultimately satisfy its appetite. No greater mistake can be made than to say in the presence of the child that he does not like a given food and hence must not have it; do not make the child's food a matter of discussion, and if that which is prepared is well prepared and well given amid pleasant surroundings, there will rarely be occasion for discussion. It is important to realize how valuable to the child are habits of proper eating. Only adults who suffer from the effects of badly-chosen food, and who can often trace the beginnings of dyspepsia to childhood, can appreciate the truth of this statement. No greater legacy can be given a child than to establish in it a healthy and judicious judgment in the relation of food.

After this discussion of food for the child the next step in the treatment of such a condition is necessarily to try to remove the cause of the grandular trouble. Unhealthy local conditions of neighboring parts must be removed; it is hardly necessary to say that a cure cannot possibly be expected until this is done. The glands certainly could be extirpated, but in all probability other glands would quickly return unless the original source of irritation were also eliminated. Treatment must be general as well as local; in fact, seeing what an important part is played by personal proclivity to glandular disease, general treatment becomes of the first importance. When it is possible, change of air, of scene, and mode of living should at once be suggested. Sea-air in a bracing district is, by commono consent, one of the most potent aids to recovery in these children.

The longer the condition has lasted at the time treatment is commenced, the longer will be the time necessary to effect a cure; for treatment should be continued for about the same length of time as the disease has continued. But firmly believing that constitutional peculiarity is largely responsible, do not be content to order a few bottles of cod liver oil and a week or two at the seaside, for no reasonable person can expect to make much or any impression on a constitution in this time or manner. In children at the school-age with marked glandular proclivities, I should advise that they be sent to school, if possible, in some seaside town, as Atlantic City. When the weather is warm, sea-bathing; when cold, bathing in a tepid sea-water swimming-bath will be highly beneficial. When these cannot be had, sea-water baths may be tried at home. As I have said, good food in sufficient amount is of greatest importance in such cases; especially in school-children, this question of food must be satisfactorily solved if treatment is to be successful; too little attention is given to food in schools as at home, and there is ample room for improvement both in its quantity and quality. Plenty of milk, eggs, bread, butter, oatmeal porridge and fruit are not only most wholesome, but essential to health. Attention to secure well-ventilated sleeping rooms; overcrowding is a serious factor in the production of bad health and in lowering the constitutional vigor of young subjects. Until all such general debilitating influences have been removed, neither medicinal nor surgical measures are likely to prove of much value. Among drugs for internal use cod liver oil stands pre-eminent, given very shortly after food, in small doses, for large doses nauseate, and a considerable portion of the dose passes away undigested; a teaspoonful of oil in some suitable medium—in capsules, wine, black coffee, peppermint-water, or milk—may be prescribed twice a day, after breakfast and after tea. Even for adults, when there is any intolerance, this small dose will be found most useful and efficacious. As a rule, so-called purified or tasteless oils, are not valuable, for, if much purified, the oil loses its specific quality. A few grains of salt added to cod liver oil render it more palatable and more easily borne. Children often like pure cod liver oil after a few doses. Arsenic in the form of Fowler's solution is a most valuable remedy; in small but increasing doses three or four times a day, at meal-times, it is usually very well borne, even by irritable stomachs; being tasteless, it can be dropped into the water, or milk, or other fluid being served at the meal. Nor must iron, in some of its many forms, be omitted, especially when adenitis is associated with anaemia; again, iodine inhalations are often very useful; a little iodine placed in a wide-mouthed bottle left in the bedroom uncovered, or simply covered with fine gauze, and allowed slowly to sublime; or from sixty to one hundred minims of the tincture may be dropped onto a saucer and allowed slowly to vaporize in the bedroom during the night. This seems a small and almost imperceptible dosage of iodine over a long period, and

is an efficacious means of purifying the air of the sleeping room. External remedies are very useful when properly applied. As has already been said, though local, glandular disease is generally secondary; the source of irritation or primary disease being in distant parts. Hence, it follows that remedies intended to act on any given set of diseased glands should be applied to the parts originally affected, in order that the remedies may be carried into the glands by the same channels as have conveyed the disease. Only such remedies should be applied as can be absorbed; so soon as the external skin shows any signs of irritation, the application should be suspended for awhile. The most efficacious method of applying such remedies is by inunction; mercury, iodine or arsenic, according to the nature of the patient and of the primary disease, can be used. One or other of these substances should be mixed with oleic acid in varying proportions, and a little of the ointment should be well rubbed into the skin over and for some distance around the affected glands. It does not suffice to smear it on, it must be gently but thoroughly rubbed in, for ten or twenty minutes at a time, two or three times a day. Should the affected glands be in the neck, for instance, the ointment should be applied up into the scalp and over the upper portion of the chest-wall, back and front; if the armpit be the seat of the trouble, the ointment should be applied to the whole of the upper limb and about the shoulder; the larger the area of skin acted upon, the larger the number of lymphatic stomata to absorb it. Painting with tincture of iodine is the routine treatment usually adopted, and this is often applied until the skin is quite sore; such treatment will increase rather than soothe the irritation, for iodine can have no specific effect unless it be absorbed.

Look for the original source of the irritation; such obvious sources of irritation as eczema, impetigo, otorrhœa, or conjunctivitis should not be overlooked, and they must be remedied before we can expect any permanent improvement in the glands. Decayed teeth, unhealthy conditions of the mucous membrane of the mouth, large tonsils, and especially adenoid growths in the naso-pharynx often exists without attracting much attention; it is important that these conditions should be taken in hand. For the mouth and pharynx, the application of glycerin of alum or glycerin of boric acid is recommended; or thin solutions of alum or borax or resorcin may be sprayed into the pharynx. If the posterior nares are affected a few drops of a tepid solution of one or other of these drugs may be snuffed up out of the palm of the hand or be injected by means of a nasal douche or syringe. Other measures having failed, extirpation of the glands may be undertaken. Having decided on the radical measure, a time should be selected when the general health is fairly good, and the local surface conditions are as free as possible from inflammation. Especial care should be taken to shell out the glands without bursting them; lessening the danger of any infection, and help to secure rapid healing. It will not recur if the glands are thoroughly removed, the original source of trouble removed and there is no local infection, three conditions often difficult to fulfill.

Dr. Henry Jackson emphasizes a discrepancy between the rate of the arterial pulse and the rate of the heart beat as a sign of cardiac failure. The heart beat may be much faster than the pulse.

THE NATURE AND TREATMENT OF HEPATIC, CARDIAC AND RENAL DROPSY.

BY A. M. LEONARD, M.D.

AS pointed out some years ago by Pye-Smith, the diseases of one generation become the symptoms of the next. This is particularly true of paraplegia, amaurosis and dropsy. A hundred years ago the physician told the family of the patient that his "complaint had turned to dropsy," the effusion being the result of the relaxation of the fibres, the sinking of the animal spirits or the defluxion of a cold and moist humor.

Now, dropsy is only a step in the diagnosis, and no longer the culmination of the investigation.

The relation of Bright to his namesake is not generally understood. He did not discover that dropsy and albuminuria often go together, but he connected these symptoms with pathological changes in the kidneys.

We find the simplest expression of dropsy in the local form which results from the obstruction to the return of blood to the heart by pressure either on a finger, as when a ring is too small, or in a leg, bandaged too tightly. The arteries are tougher and stronger, with higher blood pressure, but the veins are yielding. Hence the blood gets in but cannot get out. Undoubtedly the pressure on the lymphatic vessels helps in this result, but it is not necessary for its production, for it will follow venous thrombosis. The transudate is the water holding mineral salts and albumen in solution, together with minute portions of yellow pigment and other soluble extractives, the corpuscular part of the blood and the constituent essential for coagulation of fibrinogen does not transudate. This effusion is not produced by osmosis, for colloids like albumen and globulin would remain in the blood, while only crystalloids like chloride of sodium and sugar would pass out; besides, the endosmotic current from the fluid of lower to that of higher specific gravity from the lymph spaces to the blood vessels would exceed the exosmotic from the blood to the lymph. In fact, it is hard to see how the physical laws of diffusion under pressure agree with clinical facts, for experiment shows that the skin of frogs and the veins of mammalia, while their epithelium is uninjured, offer far more resistance under pressure than do the dead animal membranes.

It is interesting to study the oedema of the internal organs; for example, in the liver increased pressure in the portal blood stream comes from compression and occlusion of the trunk of the portal vein, or from increased pressure upon its capillary vessels; while in the spleen this venous congestion leads to swelling and hardening of the organ; in the gastric and less frequently in the intestinal mucous membrane, to hemorrhage; while serous exudation takes place from the visceral peritoneum. We are now able to trace cardiac dropsy to a mechanical origin. The pathology, like the physiology, of the heart and vessels, being largely that of a hydraulic machine, any constriction of a cardiac orifice, any defect in the valves, either from changes in their substance which prevent their closing or from dilatation of the orifice, which makes normal valves incompetent, produces congestion, fulness, over-pressure in the parts beyond the seat of disease, and anaemia, with low pressure, in the parts in front, so the symptoms of cardiac disease can be divided into those of "venous congestion" and

those of "arterial anaemia." In uncomplicated aortic cases marked by pallor, syncope, breathlessness and liability to sudden death, the cause is arterial anaemia; venous congestion in primary mitral cases, in those of dilatation of the right cardiac chambers from chronic obstruction of the pulmonary circulation, in the latter stages of aortic disease when the mitral valve has given way, and in the last period of chronic Bright's where hypertrophy of the left ventricle is followed by dilatation and a small, hard, renal pulse becomes irregular and easily compressible.

The results of systemic venous congestion are two-fold; in these cases in the mucous surfaces the distended venules give way, hemorrhage relieving the pressure. Thus, haematemesis may result by the same mechanism as in cases of cirrhotic portal congestion. Should hemorrhage not take place, an organ becomes swollen, dark-colored, firm, or even hard in texture, as may be seen in the spleen, the kidneys and the lungs from long continued mitral obstruction. This form of dropsy strictly follows the law of gravity, for cardiac dropsy starts in the ankles, the venous congestion of the veins being favored by the weight of the blood. When a patient takes to his bed it affects his back, loins and upper extremities. One arm may be more swollen than the other if he habitually lies on one side.

Renal dropsy is of two separate pathological kinds. One variety occurs toward the end of the most chronic cases with insidious origin, atrophy of the renal cortex and cardiac vascular changes, mechanical in pathology but cardiac in origin. It appears when the pulse and other symptoms give evidence of cardiac failure. This form affects the feet first and the face but little, and it may be accompanied by extreme congestion or even hemorrhage in the lungs or stomach. But next there remains the much more striking, extensive and characteristic anasarca which marks both early and later stages of the more acute form of renal disease, with definite onset and the well marked characters of the urine which mark tubal or parenchymatous nephritis, anasarca in the strict sense of the word affecting all the lymph-spaces of the body at once, the integuments most rapidly and the serous membranes gradually—not governed by gravity, except slightly. It is distributed according to the location of distensible skin and loose connective tissue, such as the oedematous conjunctiva, which produces the traditional "bright eye" and "the tear that does not fall," to the baggy lower eyelid or the often prodigious scrotal or preputial oedema. This anasarca by mechanical distention of the skin and pressure on the vessels, aided by the anaemia of the disease, produces that extreme and striking pallor which it is said Bright himself recognized as a symptom of tubal nephritis in the remark that "a large white man means a large white kidney." This is the clinical picture of the characteristic and purely renal form of dropsy which must be distinguished from the later mechanical dropsy of chronic Bright's disease. True renal anasarca cannot be ascribed to a hydraulic origin, for, on this hypothesis, there is no valid physiological cause for its occurrence. Its distribution would be different, and as a matter of fact it does not occur in other diseases when hydraulic conditions are favorable. Distinctive renal anasarca is certainly not the mere result of scanty secretion of urine, for it often remains even after the kidneys have re-attained their normal excretion of water; nor does it accompany great diminution or even suppression of urine, due to other causes than nephritis. No anatomical evidence has yet been offered to support Cohnheim's hypothesis of a change in the walls of the capillary vessels favoring the escape of serum. Nor does any change in the constitution of the blood, the diminution of albumen and other colloids, the diminution of red corpuscles, or the excess of urea, explain renal dropsy, since we find nothing like it when anaemia or albuminuria or uraemia is present from other causes. Renal dropsy in its more acute and characteristic form is not a passive exudation, but inflammatory. This is the only satisfactory hypothesis, for, in the first place, this agrees with its universal distribution and comparative independence of gravity, while it explains its absence in the more chronic and least inflammatory form of kidney disease. It is difficult to draw the line between hydrothorax or ascites in cases of Bright's disease and pleurisy or peritonitis with effusion, and it is far harder than in cases of cardiac dropsy. Should the serous exudation be inflammatory we need not need artificial distinctions, for lymph, serum or occasionally even pus are alike the exudation of renal peritonitis, pericarditis or pleurisy.

Again, we find that oedema occurs in cases of phthisis, in anaemia, in scurvy, and moderate oedema is often seen during convalescence from fevers or other acute diseases, disappearing after convalescence. There may be evidence of dilatation on the right side of the heart and general venous congestion, as in other examples of chronic obstruction in pulmonary capillaries. Should the dropsy follow acute diseases, the pulse is weak and compressible while the patient is liable to giddiness or even syncope. Here oedema of the ankles depends upon a weak left ventricle causing arterial blood pressure, with stagnation in the veins, particularly where the circulation has gravity against it; also, the cardiac muscles suffer in the same way as do the muscles of the limbs, and the circulation is weak for the same reason as the patient's grasp is feeble and his gait unsteady. The oedema which occurs in various forms of anaemia has been ascribed to the watery state of the blood, alleging that it is more diffused through the vascular walls; but there is no evidence of this, and exosmosis would be diminished, not increased, by a fall in the specific gravity of the contained fluid. The dropsy of anaemia is due to the same cause as stated above—weakness of the cardiac muscle and consequent low pressure in the arteries.

In diagnosis of these forms of dropsy we know that oedema confined to one limb depends upon external pressure upon the corresponding venous trunk or upon the formation of a thrombus within it, such as the oedema of an arm from the pressure of an aneurism, an abscess or malignant growth on the axillary vein, oedema in a leg from thrombosis after fever or parturition, such as seen in milk-leg. When it comes to the diagnosis of portal dropsy, pathologically as local as the cases first mentioned, the decision rests upon its limitation to the parts below the diaphragm. When we see a patient with emaciated face and arms, but with a big belly and swollen legs, we conclude at once that disease of the liver has caused first ascites and secondly oedema of the parts supplying the inferior cava. Here the genital organs escape from dropsy, and so does the abdominal wall—a valuable diagnostic point between hepatic ascites and that due to renal disease. The patient may say that the legs began to swell before the belly, but, apart from wilful deception, this depends upon the tight

shoe and puffy ankle observed when the patient retires; which early ascites is naturally attributed by middle-aged men and women to fat or flatulence. It is hard to detect a small amount of ascites—more than a pint of serum may be present without causing demonstrable dulness in the flanks, even when we contrast the results of percussion in the right and left lateral position—but the abdomen becomes speedily more rounded and uniform in outline and the umbilicus begins to flatten out, in striking contrast to its deep depression in obesity. A common trouble is to distinguish ascites from inflammatory effusion into the peritoneal cavity, which is often painless, even when secondary to cancer or tubercular growth.

Here, in these cases, physical signs are exactly the same as in ascites from portal obstruction, and the diagnosis must rest upon the presence or absence of other symptoms pointing to the liver and to the possibility of the existence of cancer, of tubercle, or of cirrhosis. In general, dropsy, which is of cardiac origin, whether primary or secondary, by its close dependence upon gravity, is the cardinal point. The ankles and instep swell first, and the oedema which was noticed at night disappears in the morning; or, again, a patient may notiçe while dressing a little puffiness in the face, which disappears in an hour or two, being rarely seen by the physician. Swelling of the arms distinguishes cardiac from hepatic dropsy, and if sometimes one and sometimes the other is far more swollen than its fellow or than the face, we may be almost certain that dropsy is not of the renal origin. In the chronic anasarca of heart disease the face is almost exempt, and if the genital organs are swollen at all it is but little. The sallow tint or actual jaundice produced by a nutmeg liver completes the picture of advanced mitral dropsy, but jaundice is also common in dropsy from cirrhosis. It is seldom seen when the cardiac failure is secondary to pulmonary or systemic obstruction from chronic bronchitis or the most chronic form of renal disease. General dropsy of direct and immediate renal origin is recognized by its rapid onset, by the marked pallor which accompanies it and by its local distribution, for, while the anasarca is universal, the legs suffer as in all kinds of general dropsy, the face, the loins and the genital organs, which are seldom or never geratly swollen in cases of cardiac origin, and never in those due to portal obstruction, are quickly and invariably seats of renal anasarca. The puffy eyelid, the white, glistening, watery conjunctiva, the "lumbar cushion," the scrotum swollen to the size of a child's head, and the penis distended like a bladder, translucent—these features are striking symptoms of tubal nephritis. Yet, however great the preputial oedema, there is never retention of urine. The serious cavities probably never entirely escape, and often we see ascites and effusion in one or the other pleura almost from the first. Fluctuation is more difficult to obtain than in cases of cardiac or nephritic dropsy.

When we come to the treatment of dropsy, naturally it depends upon an accurate diagnosis of its nature and origin. Should slight oedema of the lower extremities, as the result of functionally weak circulation, be seen, then there is no direct object in removing it, yet its disappearance is a comfort to the patient. Where there is more extensive dropsical effusion, treatment must be prompt and vigorous if it is to be efficient. First object, get rid of the effused serum. Do this mechanically by puncture of the legs or by tapping the abdomen or the chest, or physiologically by increasing the natural output of water from the body. Water leaves the body by four channels—by the kidneys, the skin, the lungs and the bowels. It is in health that the last amount is inconsiderable, while the cutaneous and renal excretions alternate, the healthy kidney secreting more freely when the skin is cold and dry, and much less so when there is abundant excretion of sweat. The excretion of water by the lungs is more constant than that by the other two chief exits, being increased where exercise causes deep and rapid breathing. Unfortunately, in disease we cannot avail ourselves of the lungs to increase the output of water, but we can so powerfully stimulate the intestinal secretion that purging becomes as important a means of elimination as diuresis or sweating. These three methods of unloading the body of its excess of water exist, and we must select the best one suited for our purpose. For example: Purging, when efficient, is the most certain and the most speedy in its action—indeed, scarcely inferior to direct removal of water by mechanical means. Hydragogue purgatives are more sure in their effects than drugs which act upon the kidneys or the skin, but the objection to this treatment is the danger of syncope from the rapid withdrawal of too much fluid and the consequent fall of blood pressure. Hence it is wise to refrain from purging in cases of cardiac dropsy, while in acute nephritis it finds its most appropriate place, especially in children after scarlet fever. In more chronic cases of Bright's disease one must use purgatives with more caution, since there is a tendency to catarrhal colitis.

We do not want to produce intestinal irritation, and attempts at hard purging in the later stages of renal disease may lead to frequent small evacuations, chiefly of mucous and blood, accompanied by tenesmus, pain and exhaustion, with but little fluid. Diaphoretics, unfortunately, are more uncertain drugs than purgatives, and some of the most efficient, such as antimony, are contraindicated by their other results. The old-fashioned rule was that salts of potash are most suitable for the kidneys, those of soda for the liver, and ammoniacal salts for the skin; hence, we can give a solution of acetate of ammonia in cases of anasarca, and if the skin be kept warm it may act nicely. More efficient to produce sweating is the hot air bath, but this powerful remedy must be used with caution, especially at first. Should the skin fail to act, it is intolerably distressing to the patient, and may be followed by severe uraemic symptoms, due to dislodgment of some retained urinary poison from the tissues, along with their lymph, and its free passage into the circulation. The patient may be put in a hot water bath, the temperature to be increased instead of allowing it to cool, staying in for a quarter of an hour or twenty minutes. He should be quickly dried and wrapped in a blanket. A free and not ungrateful perspiration follows, and when this is over he should be well rubbed and put to bed. Jaborandi, or its alkaloid, pilocarpine, is an efficient diaphoretic, but is an emetic and therefore less applicable for renal dropsy in itself than for cases of dropsy complicated by headache and the other symptoms of uraemia. In renal dropsy it is unwise to use the kidneys as a channel of elimination. Should the dropsy be severe, the kidneys are in an inflamed condition, with the blood pressure already high and the excretory tubes blocked. Prescribe here a diuretic mixture, and you will be struck by its inefficiency. You dare not use such stimulating drugs as squills,

broom or copaiba, nor the vascular diuretics of which digitalis is the chief, but either be content with a little acetate or iodide of potassium, or, what is the better course, to give the diseased organ as much rest as possible. In cases of acute nephritis, with the urine scanty or suppressed, drinking plenty of water will dilute the blood and the urine without causing any irritation, and a patient in this condition should therefore be encouraged to drink freely. In cases of hepatic and cardiac dropsy, where the kidneys are healthy, diuretics are, on the other hand, the safest and most efficient mode of treatment. In the most common forms of ascites, that due to cirrhosis, the case often comes under notice when the abdomen is already full and when swollen legs and scanty urine show that there is considerable pressure on the renal and iliac veins. Then tap at once, or diuretics will fail; but after the pressure is relieved the kidneys naturally secrete more freely. Then is the time to help them. An old-fashioned mixture of acetate of potassium sweet spirits of nitre, tincture of squills and decoction of broom-tops has been long a favorite compound in many hands, while another very valuable mixture is that of resin of copaiba. A third most efficient and far from unpleasant remedy is the English "haustus imperialis" (lemonade, with cream of tartar and a little sugar), which is a gentle laxative as well as a powerful diuretic.

In cardiac dropsy purging must be cautiously tried, and diaphoresis is difficult to obtain, and often does more harm than good. Here depend almost exclusively upon diuretics. In addition to those already mentioned, digitalis is an invaluable means, not only of regulating the heart, but also of increasing diuresis by inducing rise of blood pressure in the renal arteries. Dropsy due to cardiac failure must be treated by our recognition of its pathology, and in practice they are best met by the exhibition of iron, with which we may often advantageously combine digitalis, by more meat in the diet, by alcohol taken with the meals, and by as much exercise as the patient's strength will admit. In the secondary dropsy, hydraulic in nature, occuring in the latter stages of Bright's disease, when the hypertrophied heart has become dilated and the hard pulse has accordingly become compressible and irregular, the condition approaches that of primary mitral insufficiency, with failing compensation, and then digitalis is as useful as it is injurious with a high blood pressure, hypertrophied ventricle and incompressible pulse. Often we cannot wait for the action of diuretics, purgatives or diaphoretics, for the lungs are oppressed, the movements of the diaphragm are impeded by the unyielding mass of water in the belly, and the kidneys can scarcely secrete, owing to the high venous and low arterial pressure, due perhaps not only to the embarrassed action of the heart, but also to direct compression of the renal veins and inferior cava by the effusion. Should there be universal dropsy, it is best to tap the abdomen, for relief is thus rapidly obtained. If there be hydrothorax of one side and oedema of the lungs or only slight effusion on the other, the chest should be aspired. When the case is less urgent, the patient should be made to sit up until his legs are full of serum, and they should then be punctured with a needle, or, more painlessly and efficiently, with the point of a sharp and clean lancet, which should penetrate the skin so as to reach the lymph spaces of the subcutaneous fascia, not drawing blood. Or, two or three larger incisions may be made. The danger of the two latter methods is of exciting troublesome chronic sores, or even erysipelas or gangrene, unless done antiseptically. With acupuncture, carefully performed, there should not be any such result, except, perhaps, in cases of renal dropsy. Wash the legs with hot soap and water, then anoint with olive oil or cold cream or benzoated lard, which I have found more effectual in preventing dermatitis than zinc ointment, and after the acupuncture has been rapidly and efficiently performed from the instep to the knee the legs should be wrapped in warm blankets and allowed to drain as freely as possible. Similar punctures may be made in the scrotum, with the same precautions against inflammation from the salt serum running over the skin. Employ paracentesis in most cases of considerable hepatic dropsy, and after its performance use diuretics with good success until obliged to tap again. In cases of renal dropsy you may be obliged to tap the chest and on rare occasions the pericardium, but avoid paracentesis of the abdomen as long as possible for fear of exciting peritonitis. Acupuncture is useful, but the greatest care must be taken to avoid subsequent inflammation. Cardiac dropsy may require tapping for ascites, but very seldom for hydrothorax, but the more satisfactory treatment is by acupuncture. Get your patient out of bed and let him sit in an old-fashioned easy chair—if possible, with high elbows, plenty of cushions and headrests at the side. A night so spent by the fire will enable him to sleep as he has not for many days in bed, while the never-ceasing action of gravity draws the water into his legs. Next day skilful acupuncture will produce such a flow of serum that in certain cases the chest and belly will quickly be relieved and the kidneys will begin to secrete more freely. Then is the time to prescribe your medicines, and the results are often astonishing. A fellow-creature, waterlogged and breathless, in the most urgent distress, is so changed that his limbs and body are no longer swollen, his breathing is tranquil, he can talk without difficulty, and regains his appetite. With the aid of digitalis and extreme care in living he may maintain a state of convalescence for a long period, if possible for years. Stimulation can only be exerted upon active tissues, upon leucocytes, glandular epithelium, muscular fibres, ganglion cells or nerve fibres, but the process of absorption has been hitherto supposed to be purely mechanical. It depends on the difference in pressure between the great venous trunks and the lymph spaces, and is therefore dependent upon the activity of the circulation; or, in other words, the excess of the arterial blood pressure over that in the great veins. This view is entirely in accordance with experience of the action of digitalis, iron and other cardiac remedies on the one hand and of diuretics, purgatives and diaphoretics on the other.

Two Plants Are Charged With Cruelty.—By M. Brandicourt, in *Cosmos,* abstracted by *Literary Digest.* He excuses the insectivorous plants, such as the Venus fly-trap and the sundew, because they use for food insects they catch. The writer says in effect in speaking of the physionthus Aebeons that this vegetable monster attracts insects by its perfume. The plant has a double ovule, surrounded by stamens, furnished with saw-like barbubbles. When a butterfly seeks to reach the nectar of the flower it is caught by the proboscis and dies of hunger, being of no use to the plant in any way.

THE NEED OF PHYSICAL EXERCISE.

Erasistratus, one of the most famous physicians and anatomists of antiquity, believed and taught that exercise "is not particularly indicated for the preservation of the health." Since his time many wise and thoughtful persons have held the same opinion, which, indeed, is now regarded as correct by the best authorities. This does not mean that a person of plethoric habit can gratify his eating and drinking propensities to the full and yet remain healthy though avoiding every bodily exertion not absolutely necessary. It merely implies that exercise, in and by itself, is not a salutary practice, nor one to be relied upon for warding off the consequences of overindulgence. As an eminent physiologist and hygienist expresses it: "If a man persistently overfills his blood and connective tissue with materials ingested greatly in excess of his requirements, exercise, especially if spasmodic and violent, and taken at irregular intervals, is likely to do him more harm than good." Even among people of temperate habits the mistake is frequently made of seizing opportunities of leisure from monotonous work to do a sudden spurt of other and unaccustomed work, under the false impression that it will do them good. The chances are that they need rest a great deal more than they need exercise. To people who live in cities the drain of normal daily life upon the physical and mental energies is usually all they are able to resist. Exercise for its own sake should not be taken when it induces fatigue. It should not ordinarily be prolonged after it has started sensible perspiration, unless one is prepared for a bath and a change of underclothing at its termination. With moderation in eating and drinking, and zeal in the performance of the duties of life, moderation in exercise will commend itself to the sane man as much better than overexertion.

AMBIDEXTERITY AND PRIMITIVE MAN.

According to the Rev. Dukinfield Astley, in a lecture on this subject, of which the following is an abstract, the analogy of the quadrumana, apes, and monkeys makes it probable that man in his beginnings was ambidextrous. The evidences that he was so are few but sufficient. These consist of:—1. Flint implements which date from man's earliest appearance in Britain, and go back to the first interglacial period. Among these, scrapers, hammers and pounders have been found clearly adapted for use in the left hand, and these as numerous as those adapted for use in the right. 2. Palæolithic man was an artist—in the fact that his representations of the mammoth, the reindeer, horses' heads, etc., were drawn with equal facility from right to left as from left to right, we have evidence that he drew with both hands impartially. 3. Certain articles of domestic use were employed by neolithic man without a handle, and it has been found by a study of the flakings that those adapted for use in the left hand are nearly as numerous as those intended for the right. But by this time, owing to the fact that in hunting and in warfare the right hand was used for offense and the left for defense, the right hand was becoming more and more the active member of the economy of the body and the left hand the passive. In spite of this, the evidence of early Greek and Roman inscriptions, written alternately from left to right and from right to left, goes to show that ambidexterity was still practised in writing. Babies are naturally ambidextrous, and children, who commence conscious life at the neolithic stage of culture, are so also and would continue so were they not taught otherwise. It is said that "idiots" show a marked tendency to revert to this type and also "persons of genius."

JAPANESE SAKE.

The United States Supreme Court finds that this beverage (sake) is neither like ale nor beer nor wine, and is similar to beer in that the material from which it is made is rice, and in the fact that it is, like beer or ale, fermented with yeast. It is more like wine than beer in its quality, as the percentage of alcohol contained in it is about 17 per cent., while the percentage of alcohol in beer ranges from 3½ to 9 per cent., and in wine between 7½ and 16 per cent. The court asserts that the tests made of the sample by taste, smell and examination indicate that it is only remotely similar in quality to either wine or beer. In quality it is more like wine in the sense that it is still, as distinguished from the ordinary effervescent ale or beer. In its use it is like either liquid, being drunk for flavor and exhilaration, but is unlike them both in the fact that it is ordinarily drunk hot.

A Centenarian Statesman.—The Hon. David Wark, of the Canadian Senate, passed the hundredth milestone of his life's journey in February last, and has always enjoyed excellent health, never a day in bed from illness since infancy. Had a farm at Richibucto, Kent, N. B., two miles from his place of business, to and from which he generally walked daily. Has not tasted spirits for seventy-five years, and previous to that date, only a little wine, which he abandoned. Never used tobacco. Irish descent, and his grandparents brought the system of eating oatmeal from Ireland. Senator Wark makes the following statement:

"For breakfast, I take porridge, which is a great luxury, one cup of tea and a small piece of bread. For dinner I take a small piece of fowl or fish, a potato or two, and a small cup of tea. For supper I take a cup of tea and a piece of bread. I sponge the body regularly and keep the bowels free. I usually sleep soundly five hours each night, and generally have a short nap after each meal. I have been sixty-one years in political life, and have lived in the reigns of George the Third, George the Fourth, William the Fourth, Queen Victoria and King Edward the Seventh. My entire life has led me to the following conclusions: That people eat too much, smoke too much and use too many beverages, which should be carefully guarded against, in order to enjoy a good old age."

A Novelty in Anatomical Teaching. Messrs. Jack announce the forthcoming issue of "The Edinburgh Stereoscopic Atlas of Anatomy," to consist of 250 stereoscopic photos, in parts of fifty each, edited by Dr. David Waterston. The first section will be ready in the coming autumn, and it is hoped to complete the work early in 1905. The advantage of the stereoscope is obvious, and the position and relations of the various structures must be in this way accurately defined.

The Biggest Searchlight in the world will be seen at the World's Fair. It was finished in an electric plant at Lowell, Mass. It weighs nearly four tons ,is of 5,250,000 candle-power, and projects a beam of light seven feet in diameter.

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"Fill your mind and heart, however large, with the ideas and sentiments of your age and the works will follow."—GOETHE.

RECENT ADVANCES IN CEREBRAL LOCALIZATION.

IT was undoubtedly due to Joseph Gall, a German of the eighteenth century, that the first conception of cerebral localization was developed. This investigator while living in Vienna published his ideas on the subdivision of the brain into organs in 1796. Later he published a classical work on the anatomy and physiology of the nervous system over a period of twelve years from 1808 on. He foreshadowed the localization of the speech centre of Broca and did more work which was quite remarkable considering the data with which he worked. Gall's work was supplemented by an Englishman, Sir Charles Bell, who made the discovery of the subdivision of the spinal nerve roots into anterior or motor and posterior sensory tracts. As a result of these views, the subsequent discoveries came as a matter of course.

The nomenclature of the brain as prepared by the anatomists of the middle ages show how fanciful were the views held of the functions of this organ. For example: Hippocrates believed the seat of the mind was in the left ventricle, while Erasistratus thought that air after elaboration in the lungs and heart was converted in the ventricles of the brain into animal spirits, which permeated and controlled the organism. As late as the sixteenth century Servetus taught that the soul was situated in the sylvian aqueduct; Descartes placed it in the pineal gland, while Bruno thought that the soul was simply sensation.

Fritsch, Hitzig and Ferrier made the classical investigations between 1870 and 1875 which firmly established this theory as a demonstrated fact. Mills, in a recent paper before the Philadelphia County Medical Society, condenses the progress of our knowledge of localization from 1875 to the present time as follows:

(1) In the more exact limitation, localization and subdivision of the great motor area; (2) in an increase in the number of centres concerned with the function of speech and correlated processes; (3) in addition to our knowledge of the localization of areas of representation for cutaneous and muscular sensibility and stereognostic perception; (4) in a more exact and elaborate knowledge of visual and auditory localization; (5) in a more comprehensive grouping of brain centres into general areas, this being the outcome especially of the work of Flechsig; and (6) in addition to our knowledge of the subdivisions of the great concrete concept area of posterior association region of Flechsig.

Mills believes that the cerebral area for "object seeing" is a large one and probably subdivided into several subareas or centres of representation, such as those for geometric and architectonic forms, for persons, places and natural objects. In order that "object blindness" shall be complete it is necessary for lesions to be present in corresponding locations in both hemi-cerebrums. Transient or recurring object blindness is sometimes exhibited by patients with a lesion confined to one hemisphere.

The practical application of these advances in cerebral localization is especially in the direction of surgery. Lately brain surgery has had a renaissance and the percentage of successful results in operations for localized hemorrhages, abscesses, and especially tumors, is surely improving, owing to the more thorough knowledge of cerebral localization, to better methods of making the size, site and direction of operations and to improvement in surgical technique.

Mills summarizes as the result of his labors, researches and experiences the following valuable conclusions of the recent studies of localization:

(1) In operating for prefrontal tumors higher psychical symptoms should be the chief guide, and, in the case of the left hemisphere, agraphia and aphasia, the opening in such cases always being anterior to the main extent of the motor region.

(2) In all operations for brain tumors with dominating motor symptoms, the opening of the skull should be made so that the correlative brain exposure will be three-fourths in front and one-fourth behind the central fissure, the base of the flap being perpendicular to the lower end of that fissure.

(3) In operations for tumors having symptom-complexes in which disorders of the muscular sense and astereognosis are dominant, the opening in the skull should be so made that the cerebral exposure will be three-fourths behind and one-fourth in front of the central fissure.

(4) When oculomotor symptoms such as abducens paresis, lid drooping and nystagmoid movements are present with symptoms pointing to the parietal lobe, the operation should be parietal or parietooccipital, it being recognized that the interference with eye movements is

not basal, but probably due to disturbance of the visual motor cortex.

(5) When object blindness in any of its forms is the central feature of the symptomatology, operation should be done with a view of exposing the lower temporooccipital convolutions.

(6) When relative or absolute hemianopsia or hemiachromatopsia or both are the most important symptoms, the operation should be with the view if possible of reaching the mesotentorial surfaces of the occipital lobe.

(7) When forms of literal or verbal blindness are the central feature of the syndrome, the angular gyrus should be the focus of the exposure.

(8) Similarly, when verbal deafness is the deciding symptom the posterior extremities of the first and second temporal convolutions should be the objective points, while for uncomplicated verbal amnesia the midtemporal region should be exposed, and for note deafness or amnesia, the anterior temporal region.

THE SCIENTIFIC CURE OF SEASICKNESS.

THERE are certain illnesses which may become alarming in their symptoms and yet excite only a humorous, contemptuous pity, without any real sympathy or extended efforts to alleviate. The boy poisoned by his first attempt in smoking tobacco may reach an extreme state of nervous and physical collapse, and yet nothing is thought of it in a definite scientific aspect. So it is with seasickness. The vomiting, the dizziness, the nervous, mental and physical collapse in any other condition would excite the most undivided attention, but as it is, seasickness excites only the risibility of the well and in literature commands only the pen of the humorous writer. This is due to the fact undoubtedly that so few boys die from smoking tobacco and so few passengers succumb fatally to seasickness.

Yet seasickness is an extraordinary condition which is little studied and little understood. Remedies have been proposed by the thousand, devises of all sorts have been invented, but the condition remains largely unaffected by any treatment. As the old sailors say, the only absolutely effective remedy is the shade of a green apple tree.

There is no doubt that there are many factors in mal-de-mer. In the first place the close confinement on shipboard, with lack of exercise and the eating of heavy meals, tends to clog the digestive tract, producing quickly that condition which for want of a better term we call "biliousness." But there is more to the condition than this. Even years of ocean-going may never remedy the condition.

It is well known that sailors and officers even after many years of service are still more or less affected by seasickness. The first officer of one of the largest steamers on the German service has stated that although he has gone to sea since a boy, he is never free from this distressing condition.

Ocean travel should be a pleasure and a benefit. The steamship companies recognize this fact and are now attempting to overcome the ills of seasickness by building enormous boats, in which the action of winds and waves is minimized. They have been remarkably successful, for the larger boats recently put into service being slower and broader are surprisingly free from distressing motions.

Some years ago Corning devised an apparatus to produce "seasickness" experimentally. It consisted of a high-backed wooden chair supported upon a steel shaft the point of which is pivoted below and the upper part of which passing through a steel eye directly beneath the chair is maintained in an upright position by four iron bars, resting on a frame of wood in length about six feet. He then added an apparatus, consisting of a spindle connected with the base of the chair by a chain and sprocket in such a way that by turning the handle of the spindle, the chair and its occupant may be rotated at any speed. In this way he induced vertigo of all degrees of intensity and then tried to abort or prevent its production together with its accompanying nausea and cardiac weakness.

Corning tried these experiments upon himself and two friends: he found that thirty revolutions of the chair in a minute were sufficient to induce a high degree of vertigo and nausea. To prevent this condition appearing he took various drugs before his experiments. He tried iodide of potassium, ergot, the bromides, gelsemium, pilocarpine, quinine, digitalis, sodium salicylate and antipyrine. No good results were obtained from the use of these remedies.

Corning then found that the two efficient drugs were hyoscine and opium in some form. Hyoscine was the better of the two but better still were the two together. His account of his final successful results are interesting, being as follows:

"I took R. hyoscine hydrobromide, gr. 1-150; and, some time later, on the appearance of drowsiness, seated myself in the chair, causing the latter to be revolved at the speed—thirty turns in the minute—that, in the absence of medicinal interference, had always been sufficient promptly to induce in me both vertigo and nausea. Whirling in this fashion, I was made speedily aware of two things: First, that the vertigo was reduced to the proportions of an insignificant intrusion; secondly, that the nausea, while actually much reduced, still persisted with sufficient vigor to cause a sense of local malaise.

"2. Dispensing for the moment with the problematical aid derivable from physiological subtleties, I determined to go forward empirically—to combat the

sensations referred to the stomach, whether there or elsewhere originating—by obtunding the sensibility of the organ. To this end, I immediately swallowed four grains of resorcin; and, the better to obtain the full benefit of its local action, took of water but a tablespoon or two. Ten minutes later I again seated myself in the chair, which, revolving at the accustomed speed, now utterly failed to produce the least gastric discomfort. There still remained, however, some slight adjuncts of vertigo.

"3. These I determined to suppress, if possible, by still further obtunding the central nervous system. Accordingly, I swallowed at once nearly half a grain of opium, and waiting till I fancied absorption pretty well accomplished, seated myself, very drowsy, upon the chair. To my satisfaction, the turning was now accomplished without discomfort of any kind, and this whether the eyes were shut or open, or whether the chair was suddenly arrested in its motion or not. And finally, and still more convincing, there was the same absence of symptoms when the eyes, tight shut during rotation, were suddenly opened upon its abrupt cessation.

"I remained thus vertigo-proof for nearly four hours, the presistence of immunity being determined by repeated tests in the revolving chair. The first indication of the return of susceptibility was a slight sense of nausea, followed in no long time by the characteristic dizziness."

To demonstrate his plan practically, Corning took passage on a coastwise steamer from New York, as he recorded in a recent paper in the *New York Medical Journal,* as it is notorious that seasickness on these boats often comes to the hardiest of passengers. He became so ill from the action of the boat that he scarcely had the pluck to try his remedies, but finally he took hyoscine and opium in tablet form and ten minutes later three grains of resorcin and nitroglycerin gr. 1-300. Improvement was rapid; in ten minutes the nausea had gone and in twenty the vertigo. Saturated with scientific zeal Corning tried to bring on the sickness again by hanging over the rail at the ship's bow, but to his delight he was unaffected. He then started in to treat his fellow passengers. He gave morphine in place of opium and added a little cocaine to the resorcin to stimulate its local action. Having overcome the illness, he gave regularly every three or four hours a tablet consisting of a sixth of a grain of morphine, a quarter of a grain of cannabis indica, a three hundredth of nitroglycerin, a sixtieth of strychnia, a grain of resorcin and a sixth of cocain. This produced immunity. Of twelve passengers so treated, nine were completely cured, two were benefited and one case, an anemic, hysterical woman, was apparently unaffected. Certainly this line of treatment deserves careful attention. We have allowed seasickness to go untreated too long; if the sea can be robbed of its terrors, it will add a great pleasure to the opportunities of travel of which we all dream.

THE ECONOMIC ASPECTS OF THE MEAT QUESTION.

ANY failure of the production of the ordinary necessities of life results in suffering; and the suffering of deprivation, when multiplied by extension over a large population, inevitably means death. Thus, while the man or corporation which increases the price of works of art, books, theatre performances, transportation, etc., so that they become less accessible to the community generally, merely subtracts from the enjoyment of life; the man or corporation that increases the price of food, clothing, rent, fuel, etc., beyond the normal, should realize that he is taking life, just as inevitably, though of course much less personally and directly, as if he fired a Gatling gun into a crowd or set fire to a tenement house. Not being a socialist, we do not wish to dispute the right of any individual or combination thus impersonally, quietly and legally to increase the death-rate. Indeed, every one of us who gets ahead of the average of human prosperity, unless he does so by directly adding to the productiveness of the world, inevitably causes a lowering of the level of prosperity, *i.e.,* of the chance of living, for others. At the same time, we believe that it is proper for philanthropists and for the people themselves, as politically organized, to consider the welfare of the people as a whole, so far as this can be done without trespassing upon individual liberty.

The recent strike of butchers in Chicago has seriously threatened a tremendous rise in the price of meat, although it would appear that any actual advancement of prices has been of a speculative nature and not warranted by a positive failure of supply. It is a matter for public rejoicing that the catastrophe has been averted, but the lesson is just as plain—the wise man may learn as much from a narrow escape as from an actual mishap.

First of all, it is to be noted, as has occurred so many times in recent industrial history, that the people as a whole have been threatened by those ordinarily supposed to constitute the people. In other words, the public menace has been the working class. We use the word *class* without apology. When thousands of men bind themselves together in the most formal manner, establish exclusive rules of such a nature as led to the overthrow of the Church as a legislative factor, and as led to the revolutionary overthrow or forced mitigation of political government; when these same men seek social diversion, cause holidays to be instituted and exert political influence by reason of the nature of their industry, it is useless to deny that classes exist.

Except empirically, it is difficult to establish a

theoretically fair standard of price for any commodity. As is always the case, except in regard to non-perishable and easily handled commodities, retail prices are higher in cities than in small towns. The mere fact that large meat corporations are able to transport meat for long distances and to sell in small towns, in rural communities, thus competing directly with the farmers, indicates that prevalent prices for meat are not exorbitant, though doubtless a large and well organized corporation yields not only an absolutely but relatively greater profit than can be secured by the small producer.

Cheap meat depends quite directly upon cheap land, that is, upon a surplus of land not needed for ordinary human habitation. We are informed that all of the great grazing business of the country is conducted upon an expense for the land itself of from 2 to 5 cents an acre, whether estimated as interest upon investment or rent or a peculiar arrangement of taxes, which virtually amounts to a ground rent by the state. We are liable, as a people, to forget that our prosperity and advancement has depended very largely upon the opportunities and incentives of ample land space, rather than upon any peculiarly favorable mental development. It is not our purpose to argue against free immigration or even to express an opinion upon the question, but to suppose that we can fill up our territory to the density characteristic of Europe and continue to enjoy our special privileges of abundant and cheap foodstuffs, is as absurd as to marry on the supposition that two can live as cheaply as one.

It scarcely requires argument to show that animal food is inevitably expensive as compared with vegetable, whenever it is necessary to raise meat animals in a domesticated state. Theoretically, the cost of meat increases with density of population. Practically, it does not increase commensurately for the reason that the demand necessarily falls off in a thickly populated country, on account of the poverty of the inhabitants, and, on the other hand, because in a country like our own, with abundant pasturage still available at cheap rates, the price rendered possible by cheap land for grazing will be advanced by transportation charges, as well as to come just below what the small farmer can afford to charge for animals raised as an adjunct to crops. We must also remember that, in accordance with our political ideals, the cost of nearly all commodities is high on account of our protective tariff and our abnormally high wage scale. Thus, curiously enough, the American traveler in Europe is surprised to note that the prices of meat are not so very much higher than here, while, on account of the relatively greater waste and profit by restaurants and hotels in America, the charge for viands served on the table in Europe may be considerably less than in America. Still, it must be recollected that the purchasing power of money in Europe is, on the whole, greater than in America.

A temporary rise in price of meat is not to be regarded as particularly unfavorable, although it is a wise public policy to oppose any attempt to increase the price of commodities and constantly to endeavor to hold all prices at a minimum consistent with fair wages and reasonable returns on capital invested. Such a policy, consistently carried out, results in far greater benefit to the working class and to the community generally than any forced attempt to increase wages beyond a normal value. There is no question but that, as a nation, we are abnormally wasteful, and, especially that we not only eat too much meat, but throw away enough more than we eat to feed an equal population, the quantity actually demanded for health. Thus, the reaction from a transient rise of price in meat, however caused, tends to restore a normal price by quickly diminishing the demand. This, in turn, will have a salutary influence both upon the capital and labor interested in meat production, by teaching both of these trusts that their own immediate ends cannot be served at the expense of the community at large. It is altogether likely that the absolute physiologic need for meat of the more densely populated states of our country could be supplied by the limited number of pigs, sheep and cattle raised locally on crop farms, under present conditions. If the people will learn the economic lesson of using meat carefully, and the hygienic lesson of eating less of it, all branches of the great meat industry will feel the effect, and the tendency will be toward a permanent reduction of price and a reactionary diminution of production, but not to such an extent as again to raise the price to present standards. The shrinkage of an industry necessarily involves localized hardship, but, in the long run, the industrial conditions of the entire country are best fulfilled when all business is conducted on an economic and sensible basis.

NIELS FINSEN.

THIS very great physician and truly noble man died recently of heart disease. But forty-five years of age, he nevertheless lived long enough to establish, after many years of doubt and dispute, the value of the remedial measures with which his name is associated. He was the last recipient of the Cameron prize in therapeutics, awarded by the University of Edinburgh, and of the Nobel prize in medicine—the latter giving him the means to further his life work.

Finsen took up the treatment of lupus vulgaris, which had generally been subjected to purely surgical procedures, such as had in the main been unsatisfactory. He based his treatment upon the belief that under certain conditions, light had a potent action upon morbid processes. He found that the blue and the violet rays, the highest and the shortest notes in the "visible octave" of which sunshine is composed, exerted the requisite chemical action. He believed that those rays cause certain of the severe cutaneous symptoms of smallpox, which he undertook to treat by the exclusion

of all but red light. Vaccination gives us so few opportunities of studying smallpox, that, after more than a decade, the utility of this red light treatment is still undetermined. But these same rays of light pitch, and also the invisible rays a few notes higher, which are called ultra-violet, are as useful in the treatment of lupus as Finsen supposed them to be deleterious in smallpox. His belief was that these rays were lethal to the tubercle bacillus. Other physicians consider that the rays stimulate the patient's tissues to more efficient opposition and render them resistent. In Finsen's equipment, a 60,000 candle power electric arc lamp more effective than direct sunlight—had four telescope-like tubes proceeding from it toward four patients who would be seated at ease reading perhaps the newspapers during an hour's seance. The nurse focuses the light until it covers an area the size of a dime. Before reaching the skin it has to pass through a layer of rock crystal (glass would cut off the ultra-violet rays) through which there constantly passes a stream of cold water, in order that the patient may not be burned. At the end of the hour, the patient might feel a little discomfort. A cure takes weeks or months. The London Hospital, to which Queen Alexandra had the Finsen treatment transplanted, has always cases booked for more than a year to come. Each lamp in this institution costs several hundred pounds a year in electricity alone. The results are excellent. They are practically infallible. Even the Roentgen rays do not approach the cosmetic results. Generally there remains a soft, pliable scar which it requires close inspection to distinguish from the original skin. There is practically no distortion.

Finsen has given health and happiness to many thousands. No one can yet foresee the future of the principle which he has demonstrated of systematically employing ether waves as a therapeutic agent.

WEATHER INFLUENCES.

EXCEPT when dealing with "the rheumatics" and a few like conditions, probably very few physicians indeed take climate into consideration as an etiological factor. Yet, when we reflect that living —in the animal sense, at least,—is in large measure responsive to environmental stimuli, that animal life is the continuous adjustment of internal relations to external relations, we must conclude that weather influences upon the human economy are of the first importance. Edward G. Dexter, Esq., in a book with the above title (The Macmillans), has essayed "an empirical study of the mental and physiological effects of definite meteorological conditions." And his work is most interesting, and, we think, should be of practical value to the diagnosing physician, as well as to the philosopher, the sociologist and the statesman. Some of Mr. Dexter's observations are the following: Inhabitants of hot climates are usually listless, uninventive, apathetic and improvident. An equable high temperature, especially if moist, weakens body and mind. No long established low land tropical people is a conquering race in the broadest sense of the word. For the inhabitants of the higher latitudes, even under the tropical sun, this may be true; for as we ascend the temperature lessens on an average about one degree every 270 feet, and even at the equator there may be a temperate climate. The most favorable temperature for health, which carries with it an aggressive energy, and which has led the world march of civilization, averages about 55°; and this is found in the temperate zones. From these zones have come the brawn and brain of martial conquest and intellectual attainment. The dominant peoples are shown between the 25th and the 55th parallels. Further north the available vital energy seems so largely expended in furnishing mere body heat and stimulus for the necessary physiological functions that there is little left for use in those activities which make leaders.

Every one must have for himself made observations corroborating these of Mr. Dexter. Can a Plato or a Kant of the tropics be conceived? Certainly there never has been one such. Does not the energetic white, when he makes his habitation in the tropics become enervated and lose his habits of virility? And does not the brisk climate of the north, on the other hand, develop the scrappy Briton and the strenuous American? Mr. Dexter finds that barometric pressure has much to do with human conditions. High altitudes are invigorating, though they may act on the heart and the general nervous system. Excessive humidity is prejudicial to life; and when heat is added to this, mortality is increased. The influence of winds on the human economy does not seem marked, except in some localities, as about Buenos Ayres, where there is at times a north wind which sweeps over plains covered with marshes and becomes overcharged with moisture.

With regard to the effect of weather upon human conduct Mr. Dexter finds that there are marked fluctuations of immoral acts in a given community, and believes these fluctuations to be the effect of some cause. The community is large and the immoral acts are distributed through its length and breadth, so in searching for possible causes all those which are narrowly local in affecting but a few individuals fail to meet requirements. "A's bad breakfast and B's financial failure and C's love affair, though potent in determining the behavior of these individuals on given days, bear accidental relation to one another in point of time, and in considering 1,500,000 A's and B's and C's for a series of years would fail to be cumulative in effect. There is, in fact, but one condition in environment which changes simultaneously for all individuals considered, and that is the weather."

Mr. Dexter made his investigations largely in New York and in Denver, where he had access to the school and police records. In summing up he declares that the varying meteorological conditions affect directly the processes of oxidation, which are the chemical basis of life. And here we consider he scores heavily. Certain conditions, which he terms arbitrarily anabolic, seem to accelerate the vital processes of oxidation, while others, which he terms katabolic, retard them. A living organism has a certain amount of available energy, part of which is needed for the vital processes of living, while the rest, the "reserve energy," goes into the intellectual processes. It is this reserve energy that the weather conditions play on. The "anabolic" meteorological conditions would produce the greatest reserve energy by the stimulation of the oxidation process, and where the conditions are katabolic the reserve energy disappears.

This author draws a sharp line between inclination and energy. "A disorderly act of the nature of an assault or misdemeanor can occur only at such a time as there be both energy and inclination or impulse to un-

dertake it." The days when we most find ourselves out of sorts are the hot, humid, cloudy and perhaps, rainy ones—the days when, *ceteris parabus*, we should be most liable to have trouble with our fellowmen, if the emotional state were the only factor. But we find that for at least some of these days the number of such misdemeanors are below expectancy, as on the humid, the very windy, the cloudy and the rainy days. An ardent desire to hurt somebody is not dangerous, if there is nothing to back it up. "A most uncomfortable atmosphere might result and a record of profanity might show some interesting things, but inclination alone will at least get no one into a police court. Reserve energy, on the other hand, seems a most dangerous thing to have about." Our author assails the general belief that cloudy, gloomy days induce crime. His figures, taken in New York City, show the contrary—that clear, bracing days, with a superabundance of reserve energy misdirected, lead to crime. "Those meteorological conditions which are productive of misconduct in a broad sense of the word, are also productive of health and mental alertness; as a corollary, misconduct is the result of an excess of reserve energy not directed to some useful purpose." The general effect of "katabolic" conditions has been to increase the death rate; that of "anabolic" conditions has been to increase the data of conduct.

A consideration of the child phase of the subject; of arrests for assault and battery; of the effect of heat and humidity upon conduct; of conditions among the insane; of suicides; of criminology in general; of geographical conditions—concerning the influence of weather upon these and other phases of life we must refer the reader to the book itself, with the assurance that the reading of it will be found entertaining and profitable.

RELIGION AND SCIENCE.

IT is unfortunately true that, throughout the history of civilization, the conflict between religion and science has always been in evidence. It has practically never been in complete abeyance; and there have from time to time been acute manifestations of this antipathy, which have been attended with most bitter feeling, and oftentimes warfare far more cruel and malignant than from any other cause.

The only phase of this subject which we will consider here is the question: Why should there be, or why should there ever have been, any conflict or misunderstanding between two such inherently benignant factors in human development as those of religion and science? Edward S. Holden, Sc.D., LL.D., of the West Point Military Academy, discusses this subject in *The Popular Science Monthly* (August, '04). Many books have been written upon it. Dr. Holden considers that the viewpoint of their authors generally has been badly chosen. The battle, he considers, has often been joined on a wrong issue. The real conflict of the ages has been not between religion (or, shall we better say, dogmatic theology?) and science, but between enlightenment and ignorance. Sometimes the battle has been in the field of theology; sometimes it has been in the field of science. The warfare has nearly always been between religion and heresy; or between science and pseudo-science; occasionally, but not very often, between religion and pseudo (or it may sometimes be true) science. Usually, however, the field was plainly marked off. Theologians generally treated only theological questions, and were not even interested in scientific questions as such. Men of science, before the time of Galileo and Bruno, did not meddle with religion. Each class kept its own sphere.

Dr. Holden considers the point essential to be kept in mind that long centuries of experience have taught us that there is one and only one solution to a scientific problem. We call such a unique solution a theory. Anything less definite is a provisional hypothesis. The theories of the ancients were generally held by them primarily as hypotheses. Their whole attitude toward certainty was, in physical science, entirely different from ours. It has required all the centuries to teach us our lesson of implicit trust in scientific methods. Our trust is, in fact, in methods; not, primarily, in results. In general a physical theory attributed to one of the ancients was held by him as we hold a hypothesis. "It might be so; it probably was so; but he was not ready to die for it."

The early Christian fathers took various views of the shape of the earth. St. Augustine tolerated the scientific view. "What concern is it to me whether the heavens as a sphere enclose the earth at the middle of the world, or overhang it on either side?" The mission of the Church in the fifth century was to civilize the teeming millions of pagans and barbarians. The mighty task, requiring the entire energy of all churchmen, was well performed. It was of infinitely small importance, then, whether the barbarians were crowded together in a flat or a spherical earth.

The theory of a flat earth was enforced from Scripture in the sixth century by an Egyptian monk and traveler. Many consider his theory as monkish, because it is wrong. But this man (Cosmas Indicopleustes) was a great traveler, and reputed scientific in his time. His theory (although we of to-day know it to be erroneous) agreed well enough with the simple facts as he knew them. Are we to blame him for ignorance? "If so, who shall 'scape whipping? Is it a merit of ours that we happen to have been born since 1521, when Magellan's voyage of circumnavigation was completed?" Our fortune of birth is no particular merit to us. Most of us know that the earth is round; we haven't investigated the fact ourselves. Having been told so, we believe it; our belief rests upon authority. Our predecessors of the Middle Ages rested on the best authority they could attain. "Are they to be blamed because our centuries of experience were not behind them?" In the seventh century Isidore of Seville, and in the eighth the venerable Bede, pronounced the earth a sphere; and upon their authority it was allowable for any churchman to follow them. That many did not, emphasizes Dr. Holden, is an incident in the warfare with ignorance, not an attack of religion upon science.

Among a number of instances set forth illustrative of the author's views, he cites the familiar one of the heliocentric theory of Copernicus, that the planets revolve about the sun, as we now know that they do. His books were placed upon the index, there to remain until corrected! This action was not taken, however, until the congregation had consulted leading astronomers and had obtained their verdict that the Copernian theory was without foundation—a fact, points out Dr. Holden, which is "omitted by the warfare of science books."

The case of Roger Bacon, in the thirteenth century, is extremely suggestive in this connection. He wrote much upon scientific subjects. We know now that his theories concerning the rainbow and the Milky Way are true; much that he advanced we now know are fallacious. In his day his colleagues had not our means of knowing which of his theories were correct. But in looking through his scientific works they found that he held, with considerable tenacity, a conclusion they were entirely capable of judging. He declared that at a future conjunction of the moon and Jupiter the Christian religion would perish. They believed this religion to be immortal. Bacon subjected a spiritual truth to material things; a divine institution to configurations and conjunctions of the planets. The first duty of any institution, state or individual, is self-preservation. So the Church condemned Bacon's conclusions. Along with the false the true suffered. It was an immense loss to science that these things fell out so; but can it be wondered at, under these circumstances? The science that was here especially condemned was false science; it was not true; it was, moreover, an attack on the very life of the Church. Here was in reality an instance typifying a struggle not between religion and science, but between enlightenment and error.

A pregnant statement of Dr. Holden's is that since primitive conditions there has been an increasing struggle between man and external nature; between man and the immaterial ignorances of his mind also. Again: Veritable progress has been made on the road to spiritual happiness. The spiritual welfare of a man is bound up in his beliefs—in his religion. To attack and unsettle the beliefs of any age is to threaten its happiness in a vital spot, and such attacks are always vigorously repelled. A blow directed against ideals sincerely held hurts; and is resented. And Dr. Holden quotes, with approval, in his extremely interesting paper, this statement of President White (*Warfare of Science with Theology in Christendom*): "As to the olden errors, the whole civilized world was at fault, Protestant as well as Catholic. It was not the fault of Religion; it was the fault of that short-sighted linking of theological dogmas to scriptural texts, which, in utter defiance of the words and works of the Blessed Founder of Christianity, narrow-minded, loud-voiced men are ever prone to substitute for religion."

In 1854 a Young Physician at Goerbersdorf, Dr. H. Brehmer, aroused the medical world by his announcement that he was convinced that tuberculosis was curable. He proceeded to open a sanatorium for the reception and treatment of tuberculosis subjects only—the first of its kind in the world. Before he died in 1889, he had the satisfaction of seeing his opinion in regard to the curability of tuberculosis accepted the world over, and countless sanatoria founded in imitation of his own, which celebrated its semi-centennial a few weeks ago with much ceremony.

J. C. McConaghey (*Brit. Med. Jour.*) practises a very simple method of arresting an epileptic fit. He turns the patient on to the left side as soon as the fit begins, and holds him in this position. Nearly all the recorded cases were treated in the "tonic spasm" of the fit, and in most cases the muscles all became flaccid, and the color of the face improved, and no "clonic spasm" supervened.

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This is one of the most important subjects from the standpoint of the clinician that could be considered, and the author has made his little contribution interesting, instructive and readable.

Practical Dietetics with Reference to Diet in Disease.—By Alida Frances Pattee, Graduate Boston Normal School of Household Arts; Instructor in Dietetics, Bellevue Training School for Nurses, Bellevue Hospital, New York City. Second edition, revised and enlarged. 12mo, pp. 312. Price, $1.00. Published by the Author, 52 West Thirty-ninth street, New York.

This little book has been thoroughly revised and important additions made. It will be found of service.

International Clinics.—A Quarterly of Illustrated Clinical Lectures, and Especially Prepared Original Articles. Edited by A. O. J. Kelly, A.M., M.D. Volume III., Fourteenth Series, 1904. Philadelphia: J. B. Lippincott Company, 1904. Octavo, pp. 300. Price, $2.00.

These volumes edited with the collaboration of many leading members of the profession, and covering the cream of the literature in all departments of medicine, continue to hold the high position assumed some time since. The low price at which they are offered, brings them within the reach of the majority. Many interesting subjects are ably treated in the current issue.

The Essentials of Chemical Physiology for the Use of Students.—By W. D. Halliburton, M.D., F.R.S., Fellow of the Royal College of Physicians, Professor of Physiology in Kings College, London; Author of Text-Book of Chemical Physiology and Pathology. Fifth Edition. Illustrated. Longmans, Green & Co., London and New York, 1904. Octavo, pp. 236. Price, $1.50.

In the present edition, important changes in the arrangement of the exercises have been made in the interest of the student. The book is thoroughly appreciated by both teacher and pupil, as it contains just what is wanted and no more, and fully up to date. It is one of the first books the student of medicine should procure.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress in medicine and surgery issued monthly under the general editorial charge of Gustavus P. Head, M.D., Chicago. The Year Book, publishers. Per volume, $1.00, the series, $5.50.

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This series of practical instructive and useful books,

will keep the reader thoroughly abreast our progressive times. The editorial work is done by experienced teachers, condensed to suit the busy practitioner by specialists in the respective departments. For the small sum of one dollar, a particular volume may be obtained as a sample, upon the subject in which the applicant is interested, and the ten may be had for the meagre sum of $5.50. There can be no doubt of their value.

Essentials of Nervous Diseases and Insanity: Their Symptoms and Treatment. By John C. Shaw, M.D., late Clinical Professor of Diseases of the Mind and Nervous System, Long Island College Hospital Medical School. Fourth Edition, Thoroughly Revised. By Smith Ely Jelliffe, Ph.G., M.D., Clinical Assistant, Columbia University, Department of Neurology; Visiting Neurologist, City Hospital, New York. 12mo volume of 196 pages, fully illustrated. Philadephia, New York, London: W. B. Saunders & Company, 1904. Cloth, $1.00 net.

Dr. Smith Ely Jelliffe, in making the revision for this new fourth edition, has found it necessary to recast the work entirely, bringing the order of arrangement in accord with the present knowledge of these important subjects. Quite a commendable change in arrangement is the grouping of subjects in such a way as to bring out the natural relations of affiliated nervous disorders. This will be found of great service to the student, and we heartily commend it.

Essentials of Anatomy; including the Anatomy of the Viscera. By Charles B. Nancrede, M.D., Professor of Surgery and Clinical Surgery in the University of Michigan, Ann Arbor. Seventh Edition, Thoroughly Revised. 12mo volume of 419 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $1.00 net.

This work, now in its seventh edition, has met with a most cordial reception. In this revision the entire book has been carefully gone over and the section on the Nervous System completely rewritten. The illustrations throughout the text are excellent, showing the anatomy of various parts with unusual clearness. Students, and indeed practitioners, will find the work of great service.

Essentials of Bacteriology.—By M. V. Ball, M.D., formerly Resident Physician at the German Hospital, Philadelphia. Fifth Edition, Thoroughly Revised. By Karl M. Vogel, M.D., Assistant Pathologist at the College of Physicians and Surgeons (Columbia University), New York City. 12mo volume of 343 pages, with 96 illustrations, some in colors, and six plates. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $1.00 net.

The rapid progress in Bacteriology has involved many radical changes in the science, necessitating a thorough revision in the preparation of this edition. It is with pleasure we note the inclusion of all the recent advances in the subjects of Immunity, Tuberculosis, Yellow Fever, Dysentery, Bubonic Plague, and other infectious diseases, making the work reflect as faithfully as possible the present status. The student should have it.

Essentials of Materia Medica and Prescription Writing.—By Henry Morris, M.D., College of Physicians, Philadelphia. Sixth Edition, Thoroughly Revised. By W. A. Bastedo, Ph.G., M.D., Tutor of Materia Medica and Pharmacology at the Columbia University (College of Physicians and Surgeons), New York City. 12mo volume of 295 pages. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Cloth, $1.00 net.

This little book will furnish the student with a work complete and up to date in every particular, just what he needs. Much of the text has been in great part rewritten. There have been introduced articles on adrenalin, stypticin, and on the iodine and silver synthetics.

A Philosophy of Therapeutics.—The foundation of which rests upon the two postulates: first, that it is the human organism that is the active factor in the healing of the sick, and not drugs, and second, that there are two therapeutic laws. By Eldridge C. Price, M.D., Nunn & Company, Baltimore, Md., 1904. Price, $2.00. 12mo, pp. 336.

The scope of this volume is well described by the author, who says he "believes the time has come for an understanding between the various schools and sects in medicine . . . for the establishment of a platform, a scientific plane upon which all properly educated medical men may stand."

The book is not intended to be a history of medicine, but "a philosophy of therapeutics" in the interest of unification in teaching drug effects and usages.

The most vital questions are discussed in an intelligent and unbiased manner, worthy the perusal of all educated physicians.

The book is written from what may be called a normal ethical view point, and it constantly reiterates the principle that "the great end and object of the physician's efforts should be, the greatest good to the patient."

The fact is emphasized that it is the human organism that acts when medicine is administered, and not the drug. A solution is also offered to the problem of primary and secondary drug effects, and reasons are given for the scientific application of primary effects to the cure of the patient. Several drug studies are introduced to demonstrate the practicability of this theory, and also to illustrate the various drug effects to disease.

The book is free from sectarian bias, and coming as it does, at a time when the dominant schools of medicine are beginning to show increasing tolerance each for the views and practices of the other, and when the demonstrable facts of science are being recognized as the foundation for all branches of learning, this book may be regarded as especially timely from such a source.

If it is true, as the author asserts, and we believe, that there are two laws covering therapeutic principles, and that a study of all efficient therapeutic methods is the only way by which the physician can qualify himself to secure the greatest good to the patient, then logically arises the question, Why continue sectarian designation, when that is the great stumbling block to this end? The next step should be to remove this barrier, then all may become physicians in name as well as in deed.

The Physicians' Visiting List for 1905.—P. Blakiston's Son & Co., Philadelphia. Price, $1.00.

This is the 54th year of publication of this plain, systematic method. Send for descriptive circular.

The Medical News Visiting List for 1905.—Lea Brothers & Co., Philadelphia. Price, $1.25.

This publication is in its 19th year, and continues to maintain its points of excellence. Sample page upon application to the publishers.

Outlines of Physiological Chemistry.—By S. P. Beebe, Ph.D, Physiological Chemist to the Huntington Fund for Cancer Research, and B. H. Buxton, M.D., Professor of Experimental Pathology, Cornell Medical College. New York: The Macmillan Company, 1904. 12mo, pp. 195. Price, $1.50.

This little volume deals with the theoretical side of this important subject. It is complementary to the laboratory guide, of which there are many.

The laboratory student will find this book just what he needs to explain what he otherwise will have difficulty in understanding. The object is to make clear the nature of the reactions.

A Compend of Medical Latin Designed Expressly for Elementary Training for Medical Students.—By W. T. St. Clair, A.M., Professor of the Latin Language and Literature in the Male High School, Louisville, Ky. Second edition. Revised. Philadelphia: P. Blakiston's Son & Co., 1904. 12mo, pp. 131.

The author's aim is to present to the student of medicine the fundamental principles upon which the language is built for his purposes. The subject is presented in such a way that the student need not fail to master it.

Kirke's Hand-Book of Physiology.—Hand-Book of Physiology, by W. D. Halliburton, M.D., F.R.S., Professor of Physiology, Kings College, London. Nineteenth edition with nearly seven hundred illustrations, including some coloured plates. Philadelphia: P. Blakiston's Son & Co. Octavo, pp. 902. Price, $3.00.

This standard text-book has long since passed beyond the province of the reviewer, and we will only state that the present edition shows suitable revision to bring the subject to date. This classic work for elementary purposes, which has stood so long in the front rank, will still continue to be the first book the student of medicine will read. The text is so divided, typographically, that the reader may see at a glance what he can omit in his first reading. The illustrations are excellent. The book is highly commended.

The Art of Cross-Examination.—By Francis L. Wellman, of the New York Bar, with the cross-examinations of important witnesses in some celebrated cases. New and enlarged edition. New York: The Macmillan Company, 1904. 404 octavo pp. Price, $2.50.

This remarkable and unique book, which has run through several editions, has been revised, and much new matter added. One of the new chapters details at length the cross-examination of Miss Martinez in the famous breach of promise case against the Cuban banker, which caused a profound sensation in New York several years ago. Another chapter is the cross-examination of Guiteau in the trial for the assassination of Garfield. Mr. Wellman has substituted the cross-examination of Russell Sage by Chauncey M. Depew in the second trial, for the cross-examination in the third trial, as being on the whole a better and more interesting example. The book will be enjoyed by the physician as well as by the lawyer. It is both entertaining and instructive.

The Surgical Treatment of Bright's Disease.—By George M. Edebohls, A.M., M.D., LL.D., Professor of the Diseases of Women in the New York Post-Graduate Medical School and Hospital; Consulting Physician to St. Francis Hospital, etc., etc. 327 octavo pp. Frank F. Lisiecki, 9 Murray street, New York. 1904.

The author presents this volume as a preliminary to riper days. There is a demand on the part of the profession for such facts and information, especially as regarding results, as may at present be available concerning the new treatment of a malady that is becoming so common. The text includes the author's contributions to current literature on this subject to date, and considerable new matter which deals largely with results. Certainly no one has more authority to write about the surgical treatment of Bright's disease than the author, and his book covers all that is known at this time. It cannot fail to interest the profession in general.

Physician versus Bacteriologist.—By Prof. Dr. O. Rosenbach. Authorized translation from the German, by Dr. Achilles Rose. Funk & Wagnalls Company. New York and London, 1904. 462 12mo pp. Price, $1.50.

The author aims to rescue rational medicine from the hands of what is termed bacteriological aberration, morbid proliferation of specialism and a one-sided organo-therapy, by opposing the unjustified and unwarranted claims of the bacteriologist. On the other hand he says bacteriology as a biological science, concerning itself with qualities of smallest organisms, can not be too much promoted. The book voices a sentiment which is on the increase, and if it does not go too far, will be useful.

The bacteriologist is a useful adjunct to the clinician, but there he must remain. The book is worthy the widest reading.

Diseases of the Nose, Throat, and Ear and their Accessory Cavities.—By Seth Scott Bishop, M.D., D.C.L., LL.D., author of "The Ear and its Diseases"; Honorary President of the Faculty and Professor of Diseases of the Nose, Throat, and Ear in the Illinois Medical College; Professor in the Chicago Post-Graduate Medical School and Hospital; Surgeon to the Post-Graduate Hospital and to the Illinois Hospital; Consulting Surgeon to the Mary Thompson Hospital, to the Illinois Masonic Orphans' Home, and to the Silver Cross Hospital of Joliet, etc. Third edition. Thoroughly revised, rearranged and enlarged. Illustrated with 94 colored lithographs and 230 additional illustrations. 564 pp. Royal octavo. Price, $4.00 net; sheep or half-Russia, $5.00 net. F. A. Davis Company, Philadelphia.

The present edition of this work is almost a new book, the text has been so recast, new articles and illustrations added, bringing all the subjects to date. No effort has been spared to make this edition thoroughly representative of the most advanced work in this specialty, and it is designed for the use of students and general practitioners.

The work has been adopted by many medical schools as a text-book, and its popularity with the profession is attested by the rapid absorption of the editions.

Hand-Book of the Anatomy and Diseases of the Eye and Ear.—For students and practitioners. By D. B. St. John Roosa, M.D., LL.D., Professor of Diseases of the Eye and Ear in the New York Post-Graduate Medical School; formerly President of the New York Academy of Medicine, etc., and A. Edward Davis, A.M., M.D., Professor of Diseases of the Eye in the New York Post-Graduate Medical School; Fellow of the New York Academy of Medicine. 300 pp., Square 12mo. Price, $1.00 net. F. A. Davis

Company, Philadelphia, Pa. 1904.

This little volume is a reliable guide as to the principles of treatment in the diseases of which it treats, and a sufficient amount of anatomy is included for its purpose. It will be found an excellent hand-book for the student and the general practitioner. The text is written in a succinct and clear manner. It will be of great service to the student for reference at the clinic.

Text-Book of Human Physiology, including Histology and Microscopical Anatomy, with Special Reference to the Practice of Medicine.—By Dr. L. Landois, Professor of Physiology, and Director of the Physiological Institute in the University of Greifswald. Tenth revised and enlarged edition, edited by Albert P. Brubaker, M.D., Professor of Physiology and Hygiene in the Jefferson Medical College; Professor of Physiology in the Pennsylvania College of Dental Surgery; Lecturer on Physiology and Hygiene in the Drexel Institute of Art, Science and Industry, Philadelphia. Translated by Augustas A. Eshner, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic; Physician to the Philadelphia Hospital, etc., etc. With 394 illustrations. Philadelphia: P. Blakiston's Son & Co., 1904. Octavo, pp. 1027.

This great work, which has been out of print for some years, in English, is now before us in a revised and enlarged form, translated from the tenth German edition. There is no work which more thoroughly and satisactorily represents the existing state of physiological science and its relations to pathology and clinical medicine than this.

As pathological processes are but variations of the physiological in one direction or another, there has been appended to almost every section, those variations, for the use of the clinician, and they will be found of great value in practice.

The close interdependence of physiology and pathology requires comparative study such as is afforded here, and by it the student is guided from the physiological laboratory to the practical work of the clinician. That the work has been successful in meeting the needs of the profession is shown by the fact that it has passed through ten large editions in its mother tongue in twenty years, and has been translated into many foreign languages. There is no doubt the present English edition will meet a warm reception.

The Medical Record Visiting List or Physicians' Diary for 1905.—New York: William Wood & Company.

This well-known publication is ready for delivery. Sample pages and literature will be sent upon request.

First Lessons in the Symptomatology of Leading Homoeopathic Remedies.—By H. R. Arndt, M.D. 271 pages. Cloth, $1.25, net. Postage, 5 cents. Philadelphia: Boericke & Tafel, 1904.

The author says this is merely a collection of symptoms, which should be memorized during the freshman year.

King Edward's recovery from appendicitis was celebrated by thanksgiving services held all over the British Dominions. The services were concluded at a certain place by the singing of a well-known hymn, which happened to be in the back of the book.

"Let us close the services," the rector said, "by singing the hymn, 'Peace, Perfect Peace,'—in the appendix'"

RETROSPECTIVE THERAPEUTICS

Anesthetization of Diabetics.—Kausch, at the last meeting of the Deutschen Gesellschaft fuer Chirurgie, laid down the following rules with regard to the administration of anesthetics to patients suffering from diabetics: (1) General anesthetics should be avoided if possible, and some method of local anesthesia be selected, if such is not contra-indicated; (2) the use of a general anesthetic for strictly diagnostic purposes is to be rejected; (3) the repeated administration at short intervals of a general anesthetic should be avoided; (4) ether is regarded as the special anesthetic for diabetic subjects (chloroform is decidedly more dangerous than ether, and is much more liable than the latter agent to set up intense acetonuria; (5) the quantity of the anesthetic and the duration of its administration should be restricted as much as possible; (6) the administration of a general anesthetic to a diabetic patient should always be practiced early in the morning, so that the longest period of physiological abstinence may not be unduly extended; (7) every diabetic subject should, before the operation, be put under the sodium treatment; (8) if coma be threatened, or is already developed, the sodium treatment should be energetically applied by mouth and by rectum, and by subcutaneous and intravenous injections.

Nitrate of Sodium in the Treatment of Tabes.—M. Oberthur and M. Bousquet made a communication on the above subject to the Congress of Neurologists and Alienists (*Lancet*). Nitrate of sodium, which they have just been trying in a systematic and continuous manner for the treatment of tabes, had already been employed in Italy by Petrone and in Austria by Winternitz and Pal. It appears to be the drug of election for the treatment of this disease, and apparently has a wonderful effect upon the painful phenomena which appear. In fact, it seems to be the only drug which will give relief in those cases where the pains are continuous and have proved rebellious to any other therapeutic process. Moreover, sodium nitrate seems to act very favorably upon the phenomena of inco-ordination, and cases submitted to the nitrite treatment which have been already re-educated have made much more rapid progress than patients who have not been treated with this drug. Hypodermic injection of the drug appears preferable to giving it by the mouth.

Tonsillitis a Cause of Acute Nephritis.—Says John Lovett Morse, in the *Archives of Pediatrics*, May, 1904: While within the last few years a number of papers have appeared, calling attention to the importance of acute tonsillitis in the etiology of acute endocarditis, but little attention has been paid to its importance in the etiology of acute nephritis. It would seem reasonable that tonsillitis, being due, as it is, to bacterial infection, and being often complicated by cervical adenitis, peritonsillar abscess or acute inflammation of the middle ear, should lead to inflammation of the kidney, as do other acute diseases due to micro-organisms. An additional reason why it might naturally be followed by inflammation of the kidney is that it is usually caused by the streptococci, the same organism usually found associated with scarlet fever.

Morse reports four cases of tonsillitis followed by acute nephritis. Two of the cases were in adults, both of whom had had scarlet fever in childhood with no sequelæ. A few weeks after an attack of acute tonsillitis

both showed signs of kidney involvement, which on physical and urinary examination showed typical cases of acute nephritis. The remaining two cases were in children, neither of whom had had scarlet fever. However, the author excludes the probability of the attacks of tonsillitis having been scarlatinal by the fact that there were no signs of an eruption, no desquamation, no cases in the neighborhood, and no one else in either family contracted scarlet fever.

It is evident that tonsillitis may be he cause of nephritis, and Morse insists that the heart and urine should be as carefully watched in tonsillitis as in rheumatism or scarlet fever, and the examination should be kept up for a time during the convalescence.

The Social Causes of Alcoholism.—A statistical study of the various social causes of alcoholism was made by W. C. Sullivan (*Jour. of Mental Sci.*, July, 1904). It is necessary to distinguish two opposed types of drinking; namely, the drinking associated with conditions of relative luxury (convivial drinking) and the drinking associated with conditions of relative misery, the result of bad industrial circumstances. Convivial drinking often leads to drunkenness, but does not tend very much to chronic alcoholism. Industrial drinking, while leading often, though less immediately, to drunkenness, tends rapidly and fatally to chronic intoxication. From a statistical point of view, while chronic alcoholism always implies the existence of drunkenness, the latter by no means implies the existence of chronic alcoholism. In England this divergence is best seen in the prosperous mining districts, which, by reason of their prosperity, are at once more drunken but less alcoholic than any other part of the country. The graver social evils that are in any important degree caused by alcohol are related to the chronic intoxication, and are, therefore, mainly due to industrial drinking. While educational, religious and similar influences can control the excesses of convivial drinking, they have but little action on industrial alcoholism, which can only be checked by raising the standard of living, and, in a minor degree, by such methods as restricting the facilities for obtaining alcohol during work hours, providing hygienic substitutes, and so forth.

Acid Creamless Milk in Gastronomics.—Since 1897 the most strenuous efforts by intestinal lavage, water, diet, baths, astringents, etc., have been made by Henri de Rothschild (*Le Prog. Med.*, Oct. 24, 1903, *Med. Record*) and his associates to overcome the gastroenteritis of infants, but in spite of the most devoted care the mortality up to last May was in the neighborhood of 50 per cent. At that time the treatment was changed to milk deprived of cream by centrifuging and acidified by pure cultures of the lactic ferment. From 30 to 60 Cc. of this were given at each feeding. The cases treated were those of grave prognosis characterized by very profuse diarrhea, rapid emaciation, bad general condition and high fever. In a remarkably short time the temperature subsided, vomiting ceased, the diarrhea diminished, the stools becoming normal in forty-eight hours in some cases, and the weight of the infant increased. The gain in weight was most noteworthy. Other children treated at the same time by the older methods showed a rapid wasting. Out of 14 almost hopeless cases, 13 recovered. The milk was prepared by Tissier and Lanzenberg, of the Pasteur Institute.

Hygiene of Cigar Smoking.—Bamberger (*Muench. Med. Woch.*) classifies smokers as the "dry" and the "wet." The "dry" smokers are those who hold the cigar in their lips without wetting it with saliva. This is free from the dangers of "wet" smoking—that is, allowing the cigar to soak in the saliva. Alcohol in the stomach, even in minute amounts, aids in the dissolving and rapid diffusion of the swallowed poisons. All cases of tobacco poisoning probably have occurred in "wet" smokers. Cigarettes are not wet so much. Their harmfulness is mainly in the large number used and the swallowing of the smoke. Erb has recently noted a connection between arteriosclerosis and tobacco, and Bamberger has had occasion to observe an attack of angina pectoris, with other manifestations of arteriosclerosis in a "wet" smoker of 40. Erb has also informed him in regard to a still later case in a young man, a pronounced "wet" smoker, but free from other taints. Smokers should be warned to keep their cigars dry, and to take them out of the mouth between the whiffs. Thoms has recently patented his method of preventing tobacco poisoning. It is based on the fact that certain iron salts hold in combination the bases of tobacco smoke. A tampon of cotton dipped in ferric chlorid, applied to the tip of the cigar will thus afford efficient protection against tobacco poisoning.

THE CLINIQUE

Dropsy Due to Cardiac Disease.—This woman is fifty years old; she was born in Ireland, she was admitted November 29; cook by occupation. There is nothing in the family history that bears on the present condition. She has always been strong; had rheumatism thirty years ago, but there is nothing in her previous condition except this. About one year ago her feet began to swell at night. Three months ago this became worse, and she had rapid breathing on exertion, though not any amount of pain nor orthopnoea. The pulse has been small, with visible pulsation of the carotids and radial. The temperature chart has at no time shown anything of particular interest; not quite a degree below normal and a little more than a degree above. The feet are still quite enlarged.

We kept her in bed from the date of admission till last Saturday, and for four days she has been sitting up. Previous to this her feet were swollen, brawny and hard, and to-day they are distinctly oedematous, with the brawny, hard swelling which is distinctly different in character. They did not pit on pressure until the morning when she sat up.

A note I made at the first of the month says that the heart impulse was perceptible outside of the right position, there was a systolic murmur heard at the apex, and still more distinctly at the top of the sternum. The heart is now beating rapidly, more so than if she were lying quiet in the ward. Examination of lungs, liver, spleen and abdomen are negative. The urine is clear, acid, specific gravity 1010, no sugar nor casts, pretty much negative also. We can see the radial and ulner arteries pulsating.

There is a great deal of parallelism between this and a case we had last week. The patient's age is down as fifty. These Irish people, I notice, live to be about fifty, and then they are never any older! She has a condition very common in people at that time, a hypertrophy of the heart. I think now I have sections of one hundred hearts, which I have examined microscopically, and I have never seen one hypertrophied heart that was not

diseased. They are almost always fibroid, with degeneration of the muscle. I told you there was a systolic murmur here. What, then, would we be likely to find at the mitral valve? Has she a buttonhole contraction? I think not. Usually when the systatic murmur is heard best at the apex the mitral valve is not materially changed. The only explanation I have ever been able to get is that the mitral opening becomes stretched and too big to become efficient, and I take it that is the case here. If she could get well again it is likely the opening would close, and there would no longer be this murmur. There is another murmur here, a systolic murmur heard at the aortic cartilage, and better still, at the top of the sternum. The most common explanation I can get for this is that the aortic leaflets have become a little fibroid and oppose a little obstruction to the onward flow of the blood. A further reason for thinking so here is that she has fibroid disease of the arteries. The reason for their pulsating so is not exactly understood. There is very little disease of the lungs; there is some emphysema, and this is a fibrosis of the lungs. In regard to the condition of the feet, this is another thing that is very common in elderly women more so than in men. They tell you their feet are swollen, and though you may not see it at first, they are generally right. I believe it is due to a local condition of the blood vessels. There is the same hard, brawny swelling in varicose veins, and I think this may be due to something the same condition, only in the deeper vessels.

A pair of elastic stockings would be of the greatest comfort to her for the rest of her life in supporting the circulation, and if she is able to get them we will advise her to do so.

The diagnosis is a slight condition of enlargement of the heart, with stiffening of the arteries, and dropsy of the feet, the disease being principally confined to the heart. When she came in she was very much distressed, but she has improved very much.

She was put on ten minims of tincture of digitalis every four hours for about four days, then five minims three times a day, and that is what she is getting now, with the best possible results in the matter of treatment.

There is not much of any prognosis. If she were in the better walks of life so that she could sit around and not be exposed in winter, she might be very well. Here the worst dangers are from overwork, and overexposure. So a physician in charge of a case like this would have to make a very careful prognosis.

Cardiac Dropsy.—This woman is thirty-five years old; she was admitted November 22; her father died of heart disease, her mother is living and well. She herself has been usually strong and well; she had small-pox when a child, and she was in the hospital some time ago with right-sided pleurisy. In April of this year she took a cold and for three weeks was troubled with cough, with some bloody expectoration and pain in the right side. Since then she has had only a dry cough, but soon after she noticed that her feet began to swell, and later her abdomen also, and at times she had marked dyspnoea. In th last three weeks before coming she was much worse, her oedema and dyspnoea were worse. She started to walk to the hospital, but her strength gave out and she had to be brought in the patrol. She was not in bed until three days before coming here.

Her temperature when she came in was 99.4 degrees, and has been up to 100 degrees, and down as far as 97 degrees, sometimes below normal and sometimes a little above, never very high, though it has been pretty low.

When she came in she was enormously dropsical, her hands were twice as big as they are now. She has no pain in them, although you see what deep pitting there is on pressure. The left hand has never been so much swollen as the right. Her feet also were exceedingly swollen; the oedema began in the feet and crept gradually upward. The oedema in the legs is of a different character from that in the hands. The skin has become more or less irritated from the extreme pressure, and the legs are brawny. The condition of swelling has gone down very much. Her abdomen was exceedingly swollen. Examination of the urine revealed that there was albumin, but no casts.

There is very marked dulness over the right lung posteriorly, and marked weakness of the respiratory sounds. There is a systolic murmur at the apex; there is not a great deal of impulse, as there often is in cases of this kind, and not the forcible heaving character to the beat, though there is an undoubted increase of force. When she came in there was dulness on percussion, and absence of the normal breath sounds greater on the left posteriorly, with some slight crackles. So she has also a congestion of the lungs.

Going to the question of diagnosis, what is the matter here? She tells us that she began eight months ago, with cough and expectoration of blood, and later her feet began to swell, and she had dyspnoea, and after a while there was swelling of the abdomen. She kept up and did her work for eight months. What is her condition? Now, in years ago, if we found a lot of murmur with this condition we used to say the origin was in heart disease, and if we found albumin and casts in the urine and not much heart disturbance, we used to put it down to Bright's disease. When did this begin? We do not know. But almost always in these cases there is present disease of the heart, lungs, liver, spleen and kidneys, and which is the first one to be struck we do not know. I should rather put this down as originating in disease of the heart, for there are no casts in the urine; though I know that what is eventually going to kill this woman is disease of her lungs. If we can get the congestion of her lungs better she will probably get on her feet and go out and have another attack later. Her dropsy is improving, and her heart condition is better, but lately she has been wandering in her mind, and when they begin to wander in their mind, though you think they are going to get better they don't, as a rule. This has not gone far enough for any one to tell exactly what will become of her.

What has been the treatment in this case? In the first place we have kept her rigidly in bed. We used to be in the habit of allowing them to sit up a great part of the day. We used to do it, we don't allow it any more; it is just a kind of evolution in the method of treatment. They are not allowed to put on their clothes and go about. We used to think it made no difference what kind of diet we put them on, and now we think it does. So now we treat differently in these two ways: we put them to bed and keep them there, propped up if necessary, and we put them on liquid diet. And it does seem to me that a larger number of these cases get up on their feet now than used to.

We have given her for medical treatment tincture of digitalis, strychnine, whiskey and carbonate of ammonia. She has had prescribed tincture of digitalis, ten minims every four hours. You can give this with safety if you

do not give it for more than three or four days. But you do not want to give it indefinitely. Then after three or four days she was put on the use of five minims of digitalis, or ten drops three times a day, and I believe you can safely give digitalis this way and continue it a year, and in my opinion there is no danger of its cumulative effect. She had also two and one half grains carbonate of ammonia every four hours as a stimulating expectorant, because of the congestion of lung from which she suffered. She had also a half ounce of whiskey three times a day. Often in cases of this kind, on account of the distress at night and pain, there is great benefit from some form of opium, either 1-16 grain morphine, or paragoric, or 1-4 grain powdered opium, or Dovers powder. This would be given in addition to the other things. You have got to possess your souls in patience if you want to deal successfully with these cases. It is somewhat the fashion now to decry the use of opium. It is of greatest possible advantage in cases of this kind.

Cardiac Dropsy.—This is the woman who had heart disease with dropsy in her hands; and her legs were thick and brawny. I told you that what was the most serious in her case was the congestion of the lungs, and if that improved she would get a great deal better. Almost from the day she was in here for clinic, two weeks ago, her dropsy became better, and the oppression disappeared. The legs are very much better than they were; the swelling has almost entirely gone. The abdomen, which was very large, is now hardly any larger than is natural.

Two or three days after she was in here they told me the dropsy was almost gone, and in examining her I noticed a great tumor above the symphysis. She was passing urine all the time. I had her catheterized, and thought that the incontinence was probably because the bladder was constantly full. It is a rare thing for the urine to be running constantly out if the bladder is empty; it is almost always because it is full. In using the catheter I directed that the bladder must not be emptied at once, one should empty four or five or ten ounces, and then go back afterwards and re-catheterize.

The condition has borne out very accurately what I told you we should look for. Watch the condition of the lungs. The minute I saw her breathing becoming better I was relieved, and I cared more for that sign than I did for the dropsy.

Acute Nephritis.—This woman has been sick for two weeks. She has had headache and dropsy in her face, the upper eyelid being a little puffy. Examination of the urine showed the presence of albumin and casts, though no free blood. On admission the temperature was normal; it has been generally sub-normal until yesterday, when it went two-fifths of a degree above. There is not anything to learn from the temperature chart. She is suffering from an attack of nephritis.

We frequently find casts in the urine when there is no active inflammation of the kidneys; but when there are both albumin and casts, the condition must be a more active one. She has been sick only two weeks; it is an acute case, and probably the woman will recover in no great time. My experience is that most cases of this kind will recover. She will probably be more apt to have a return of the disease, that is, if she had not had it at all. Diseases, I think, are always better to be avoided than to have them and be cured. A man who has never had any kind of inflammation is stronger than one who has.

What has been the treatment followed here? When the patient came in the case seemed so mild that we put her on Basham's mixture. She took it for several days, and yet she still seemed to complain of headache, so I ordered her to be put on ten grains of acetate of potassium and twenty grains bicarbonate of potassium as a diuretic, and she was to have a hot air bath every day by means of a gas jet or a hot brick, or an alcohol flame in an air-chamber made around her by the bed clothes. This was to last five, ten or fifteen minutes, to get her into a good sweat, but not too long.

There is a good deal of uncertainty about these cases. I have seen a good many physicians attend them, and heard them speak of the danger of uraemic convulsions. What happens is frequently just opposite what one would expect. A number of times it happens that in one day there will be a large amount of albumin and casts, and you will be frightened, and in the course of three or four days it will all pass out. In other cases uraemic convulsions will take place where there was not the slightest reason for expecting them.

Rapid Locomotor Ataxia.—Our next patient is a woman forty-five years old, admitted December 14. Her father died of blood poisoning, and her mother is living. She has been married twice, the first time she had no children, and then, at the age of thirty-nine, she had one child.

In March of last year she had an attack of what she called rheumatism; pain in the legs, coming and going, being worse at night, and almost confined to the legs. Five months ago she became stiff in her hip joint, so that she could hardly go out at night for fear of walking in the dark. Eleven weeks ago she received some shock, and was forced to go to bed. Her physician told her it was paralysis. She had some fever and diarrhoea, and at one time she lost control of her bowels, though not of her bladder. There were severe pains in the lower part of her chest, and her left arm became somewhat stiff. She complains of sharp, stinging pains in the legs. Nothing is determined by physical examination, no disease in any of the organs. The urine shows a trace of albumin, no sugar, a few hyaline and granular casts. She is very thin. There is some fibrosis of the arterial system. I noticed a vein on her foot the other day that was certainly somewhat thicker than in the natural condition. The temperature is practically normal. She has very fair co-ordination of the arms; there is no knee jerk at all, and when she attempts to walk we notice the lack of co-ordination in her legs.

The woman is suffering from locomotor ataxia; which is very extraordinary for the rapidity with which the disease has come on. She was taken sick only last March, and now she is entirely helpless, absolutely incapable of walking. Ordinarily it takes ten or fifteen years to reach this stage. Often patients will have the lightning pains which she had before she was taken sick, and called rheumatism. The pain of rheumatism is not such as comes on at night and lightning in character. For four months she had these pains; then became stiff in the joints, and had difficulty in walking. One symptom of locomotor ataxia I did not look for, and that was the Argyle-Robertson pupil. I shall get the ophthalmologist to examine her eyes, for it often happens that there is some disease of the eyes in these cases.

The disease is often connected with syphilis. In reading books on the subject you are impressed with the

hopelessness of the outlook. As we are dealing here with an unusual form I feel more hopeful than if the case had progressed for many years. It is within the balance of possibility that this woman will recover. I remember the case of one man who had been working in the hospital as a nurse. He was pronounced to have locomotor ataxia, and he entirely recovered. Although some of the signs of the disease were not so positive as they are in this patient, yet it shows us that we are not infallible in our prognosis. When this woman first came in she was worse.

What is the treatment I would give her? I have given her what is contrary to the recommendations. I have hardly any reason to think this woman has syphilis, yet if there is anything hopeful it is that there is syphilis in the case. So I have put her on five grains of iodide of potash three times a day, increasing by one grain each day. If I find it useless I shall stop. I am satisfied I shall not do any harm. The probability is that she will improve, but not get permanently well, though even that is within the bounds of possibility.

Various other drugs are used, but there is not any use in going over them, the treatment is so unsatisfactory.

Chronic Lung Inflammation—Not Phthisis.—Here we have a negro woman, thirty-nine years of age, admitted December 12. She tells us her father died of phthisis, and her mother is still living. She had eighteen brothers and sisters, of whom only two are still living; three died of consumption and thirteen died in infancy. It is wonderful to think how largely this mortality is preventable. I think that the registered reports in England show that of all the children born there twenty-five per cent. die before five years of age. She had mumps, measles, whooping cough and scarlatina when a child. Fifteen years ago she had her first attack of asthma, since when she has been an almost constant sufferer from the disease. She has had frequent night sweats, and expectoration sometimes tinged with blood. Since leaving a hospital last winter she has been unable to do any work. This attack began two days before coming here. She complains only of cough and dyspnoea, her temperature has never been up to 100 degrees. She coughs but does not spit much. There is no increase of the force of the heart beat, the action is a little irritable, but both sounds are clear, and there is no organic disease of the heart, no enlargement and no disease of the valves. When I listened, over the apices of both lungs were numerous whistling rales, more on expiration. Breath sounds were absent on the left and natural on the right. One reason that examination of the lungs is satisfactory is that you have something to compare in the two sides. At the back I hear rales all over the chest, and the breath sounds are generally weaker on the right side than they are on the left, exactly opposite to the condition we found in front, where the breath sounds are stronger at the right apex. On percussion there is no distinct difference in the back.

The condition is something of a puzzle. That there is asthma is shown by the history and by the physical signs. She has sweats at night, and she tells us she spits blood, and her brothers and sisters died of consumption. I do not think she has consumption at all. I do think she has a chronic inflammation, some kind of pneumonia. It began propably as a bronchitis, and extended into the air sacs, and she has a broncho-pneumonia. The congestion of the right lung is more than that of the left, she has harsher breath sounds on the right in front.

As to medical treatment; she was given one dose hypodermically of one one-hundred-and-fiftieth grain of atropia, and then carbonate of ammonia three times a day. My experience is that carbonate of ammonium, with a moderate amount of opium will be of great benefit in these cases, given at night. I don't like giving it hypodermically, ordinarily, but in asthma you often get the best results by giving one-sixth grain morphia hypodermically and then carbonate of ammonium every two or three hours. After the more acute stage passes iodide of potash may be given.

If you can get the inflammation of the bronchial tubes and lungs well there is no reason why her asthma should not be better. But the trouble with these people is they have to get out and work.

Chorea.—The patient is twenty-two years old; her parents are living and well, and she has always been well and strong until the present attack. Three months ago she lost her appetite, and had a sense of oppression and weight in the epigastrium. Several times she vomited. There was weakness and exhaustion on slight exertion. She came in on November 20. During three weeks before coming in she became more nervous, and there were twitchings on the right side in both upper and lower extremities. She could scarcely hold anything for this reason. She had no pain nor convulsions. Physical examination was negative, with no evidence of any disease of heart, lungs or liver. She is healthy looking, and of Irish birth.

The temperature on admission was 99 4-5, and there has been nothing that could be called fever here, the temperature the last day or two being a little below normal or normal. Her condition was more marked when she came in eight days ago. One thing you can notice, that while her left hand is perfectly motionless, her right hand keeps moving. There is slight degree of uncertainty when she uses the right hand to drink. When she came in she could not keep the right hand still at all.

I have shown her to you as a sample of uncomplicated chorea. I don't remember ever to have had charge of such a case at this age, though it is common in children.

The improvement has been great in eight days. They almost always get well if they are simple and uncomplicated. The disease has a tendency to self limitation, and the normal duration is about six weeks. For a long time we have used Fowler's solution of arsenic for chorea; but in the last ten or fifteen years we have been giving it in increasing doses, until we see some effect on the patient; some effect on the eyes or on digestion. See if the eyelids become puffy, or if the patient is taken with diarrhoea or vomiting, or diarrhoea and vomiting, for you must stop when you reach this physiological limit. The way you should do it is to begin with, say, three drops three times a day, and increase one drop each day. To-morrow you would give four after breakfast, three after dinner, and three after tea. The next day give four after breakfast, four after dinner, and three after tea. The next day give four drops after each meal. If you don't put it all down on paper your nurse will surely get it mixed up, and will give too much, so that you reach your physiological limit sooner than you wish. The same thing is sometimes directed to be done with iodide of potassium and other drugs, and you must know how to have it done.

SHOULD THE PHYSICIAN PATENT HIS RIGHTS?

G. Frank Lydston, writing in the *New York and Philadelphia Medical Journal*, Sept. 3, 1904, believes that by the patenting of surgical instruments the following benefits would accrue to the profession: 1. The physician inventor would get the benefit of his ingenuity just as laymen inventors do. 2. He would protect himself against dishonest men in his own profession, who steal his ideas and publish them as original, and who possibly, not content with stealing the products of his inventive genius, claim as their own the operation which the invention has made possible. 3. The question of priority in surgical invention and operation would in many instances be settled once and for all. 4. Competition and invention would be stimulated, and the best brains of the profession would be devoted to new inventions. 5. The profits now monopolized by the surgical instrument maker would be participated in by the men who furnish the ideas. I am aware that the instrument maker will have a counter plea upon this point, and state that a large proportion of the alleged inventions of medical men are really designed by the instrument maker, the doctor's name being used in connection with them to boom their sales. Very good. The patenting of surgical appliances would put a stop to this arrant fraud, and give the instrument maker what was legitimately his due. The rule would work both ways. The instrument maker who invented a valuable instrument would get not only the profit but the reputation incidental to its invention. This would be only just. 6. A better class of instruments would be invented, and there would not be in our offices so much metal and glass to be consigned to the dead lumber room of blasted hopes in medical and surgical inventions.

WHOLESOME BREATH OF FLOWERS.

The old notion still holds among many people of this and other lands that flowers are not wholesome in a sleeping room, says a writer in *Leslie's Weekly*. Certain plants, among which are the geranium, the lily and the begonia, are supposed for some unexplained cause to give off an odor at night especially obnoxious. Scientific knowledge and numerous experiments have repeatedly disposed of these delusions, and it is a great pity that people should deprive themselves of the pleasure and satisfaction to be derived from flowers for reasons which are not reasons at all. It is true there are a few tropical plants which give off a perfume unhealthful to breathe at any time, but these plants are rare. The green leaves of all flowers are, on the other hand, most beneficial, since they purify the air. Even the doctors are beginning to recognize that they may aid in the cure of disease, and a hospital in New York has a flower ward which is used for the treatment of suitable cases.

Suppose one is confined to one's bedroom with a bad cold, an attack of influenza, bronchitis, or even with consumption, one cannot do better than surround oneself with pots of any kind of plant that has a profusion of green leaves. Geraniums are the least valuable in this respect, and strong-smelling flowers, like musk, should be avoided. How the leaves act as therapeutic agents is easily explained. What renders the air of a room stuffy and unwholesome is the carbonic acid we breathe forth. Green leaves, however, breathe it in, consume the carbonic acid, and exhale pure oxygen. Moreover, they give off in vapor the water taken up by the roots, and thus act the part of a bronchitis kettle. Consequently the patient is refreshed, and, provided there is a sufficiency of plants, exhilarated. Even people in health would do well to give this pleasant cure a trial, especially during the months when so much time is spent indoors and ventilation is at its worst. They would find themselves suffering less *ennui*, fewer headaches, fewer colds, and would also better resist the attack of serious lung diseases.

THE PAN-AMERICAN CONGRESS.

This Congress will convene in Panama during the first week in the coming January. The afternoons will be devoted to the scientific sessions and the mornings and evenings to trips and social functions. The Government of Panama has appropriated $25,000 for the entertainment of its medical guests; and President Amador, of this fledgling republic, will open the sessions by a reception on the first day. There will be visits to the canal, to the U. S. Army barracks, to Taboga Island, where a Panama breakfast will be served, and (it is hoped) assimilated; an excursion to the plantation of the United Fruit Company, and like junketings. Those who intend going to Cuba after this Congress to attend the meeting of the Public Health Association will sail for Jamaica or for Vera Cruz, and thence to Havana; and those who will return home by way of New Orleans or New York will remain until the following Tuesday. Those who intend to take part in this Congress can obtain definite information by communicating with the Secretary of the International Executive Committee in the United States, Dr. Ramon Guiteras, 75 West Fifty-fifth street, New York.

Of course medical men are not afraid of anything, least of all any disease. However, it may be a comfort to delegates to give the statement of an official connected with the Panama Health Department to the effect that yellow fever and its carriers are now held well in hand. It is expected that in two years it will be practically unknown. All people are ordered to kill the mosquitoes found in the houses; and a band of mosquito killers has been organized to look after the work on the outside. It is the larvas that are infected, and swamps and ponds are being filled. The mosquitoes do not compare in numbers with those in New Jersey. It has been found that a yellow fever bearing mosquito never moves more than 100 yards. On this account it is not attempted at this time to fill all the swamps. It is believed that when the canal is completed the region about it will be one of the healthiest in the world.

The Laboratory Conception of Tuberculosis.—Supported by statistics of Naegeli, that numerous autopsies prove that practically all dying beyond 30 years of age give evidence of having been at some time hosts of the tubercle bacillus, Von Vehring, in a recent article takes strong ground in favor of the view that the tubercle bacillus enters everybody's system early in life through food, and that it depends upon the subsequent reaction of the individual's system whether or not tuberculosis is set up after 30 or 40 years. This view, says the *N. Y. State Journal of Medicine*, would relegate the bacillus to pathology and make it play an insignificant rôle in etiology, and our present methods of dealing with the bacillus before it enters the human system will prove but an iridescent dream.

MISCELLANY

The German Supreme Court forbids the use of the title "Doctor" in Germany, when granted in the United States.

"Coffee heart" is a term lately added by medical examiners for life insurance companies to their regular classification of the functional derangements of that organ. Its effect is in the shortening of the long beat of the heart.

Dr. Amelia Wilkes Lines, who recently celebrated her eightieth birthday, is the oldest practising woman doctor in the world. She was the first woman to receive a diploma in the State of New York, and has practised in New York City since 1854.

An edict by the Czar has been enacted since the birth of his son, to the effect that the families of physicians are entitled to a pension when the physician succumbed to infection acquired while in the public service fighting the epidemic.

In Tokio, it is stated, a million people go to the public baths every day, besides thousands who frequent private baths. The houses are raised above the ground and have no cellars. The infant death rate is lower than in America or Europe.

Frost bite on the hands and feet has been treated successfully by Beray for several years with applications of 70 per cent. alcohol. With this he saturates gauze 8 layers in thickness. This is covered with a perforated protective material, and then with a bandage.

Juan Chaves, aged 134 years, is dead in Roswell, N. M. He was the oldest Mexican in New Mexico, and was born in Pecos Valley when this was a portion of Mexico. He retained his faculties to the end, and frequently related incidents occurring in the eighteenth century.

The plush seat covering ordinarily used by the railway and street car systems of the country, has been placed under State ban in Kentucky. The Board of Health will indict every railroad management that does not henceforth employ leather or cane seat covering in coaches.

Japan's scientific husbandry is the real secret of her success, says a writer in the *Booklover's Magazine.* She has only 19,000 acres of arable land, and from this little lot, which, Mr. Balce says, an automobilist would run around if all together in 11 hours, she feeds her 47,000,000.

A Congress of climatotherapy and urban hygiene is to be held at Arcachon, France, April 24-29, 1905, under the Presidency of Professor Renaud, of Lyons. Among the Vice-Presidents are Dr. Calmette, of Lille; Professor Grasset, of Montpelier; and Professor Pitres, of Bordeaux. The General Secretary is Dr. Lalesque, of Arcachon.

A case of parturition in absentiâ, *i. e.*, which took place while the patient was in another room, is reported in the *New York and Philadelphia Medical Journal.* On account of a large fibroid a Porro operation had been performed, after which the uterus was opened and the child delivered. It was strong and healthy, and three months after the operation was living.

The danger of carburetted gas, or water gas, being too freely mixed with illuminating gas for purposes of economy is a public danger in municipalities, and offers a field for scientific research, Sir William Ramsay says. A proportion of one-third water gas to two-thirds illuminating gas is about right. If a man blew out the gas in his room, such a proportion would not be fatal under ordinary conditions.

The True Father of Anatomy, it has been established by recent researches in Germany, was Leonardo Da Vinci, not Vesalius, who has been so regarded hitherto. Da Vinci, fully fifty years before the time of the latter, composed a treatise on anatomy which has since been lost, except a few students' notes and plates. It is charged that Vesalius's work is merely a compilation from Da Vinci's treatise.

Capt. Salvatore Pizzati, a philanthropic citizen of New Orleans, has announced his intention to give $250,000 toward the erection of a hospital "for the alleviation of suffering, which shall stand as a monument to the Italian colony in New Orleans, and which shall be maintained for the honor and glory of God." The plans for the hospital are being drawn, and it is estimated that the institute will cost $1,000,000.

Photographing the background of the eye has been successfully accomplished by Dr. W. Thorner, of the Royal Charity Hospital, London. His apparatus is a material improvement on the ophthalmoscope. The latter only admits of *viewing* the background of the eye. All previous attempts to photograph the interior of the background had remained fruitless, owing to the peculiar construction of the eye, which rendered it difficult to light up the interior to such an extent as to enable one to take a photograph of it.

A pow-wow doctor has been discovered in Philadelphia during an investigation by Coroner Dugan into the cause of the death of a child aged four months. The treatment consisted of rubbing the child with the dirt side of a piece of sod, and subsequently with the grass side. The child's clothes were then to be shaken out of the window and never used again, and the child was to be kept out of doors all day. The "doctor" is a blacksmith by trade, and alleges that he was taught by his mother how to cure disease. There is no law in Pennsylvania which will reach the case.

Radio-active wool, *i. e.*, cotton-wool, which has been submitted to the action of radium emanation, is convenient for easy distribution over the body, when packed in hermetically sealed jars, loses its radio-activity very slowly, and can be sent to any distance desired. From a few milligrams of radium a large quantity of wool may be prepared, and thus widely extend the use of a small amount of radium, whose cost is so great as to interfere with its widespread use. The effects of the radium emanation and of the direct action of the radium are in all probability the same. Radio-active wool, therefore, may become a stock pharmaceutical preparation.

The tea cigarette, London physicians declare, has taken the place of the morphine tablet with many women of the smart set. The result is summarized by a well-known physician, who said: "I have at least a dozen women on my hands under cure for the tea cigarette habit. Once let a woman begin to cultivate a taste for this compound of black and green tea flavors, and she is doomed. The taste is by no means disagreeable, but the after-effects are that 'one's head swims,' there is a desire to clutch at things to prevent falling, a dazed condition, semi-stupor and then visions of an extravagant nature. Within the last two weeks upward of twenty women have been taken to private sanitariums suffering from the effects of this indulgence."

INDEX TO VOL. XXXII

1904

A

Absentmindness, Sir J. B. Sanderson's 196
Academies for Practical Medicine, The New German 195
Accident Insurance 292
Accident Insurance Company, An.... 290
Acne Punctata 155
ADAMS, DR. J. H. Bad-Nauheim and Its Treatments.....332, 293
The Physician and His Finances 161
Adams-Stokes Disease, New Symptom 153
Adenoids, Treatment of 228
Adrenalin, Use of, in Anesthetic Injections 227
After Fifteen Years—a Class History 256
Aid, Mutual, Progress by 96
Alcohol, Absolute, Perfect Substitute For 356
From Feces 324
From Sawdust 160
Alcoholism and Alcoholic Insanity, Distinction Between 154
Alcohol, as a Factor in Tuberculosis 324
A Study of 224
Undrinkable, Prize for Making 228
War of Railroads Against .. 96
Alcoholism, The Social Causes of.. 383
Ambidexterity and Primitive Man .. 372
Amputation of Both Feet..... 260
Anasarca Treated by a Mechanical Method 223
Anatomical Teaching, Novelty in.... 372
Anatomy, The True Father of..... 388
Anemia, Secondary, Compared to Typhoid Fever 91
Anesthesia, Chloroform and Oxygen. 321
Local, for Inflamed Tissues... 303
Spinal 160
Water, in Surgery, and Its Suggestions in Medicine..... 352
Anesthetics for Plants 228
Anti-Mosquito Campaign in the British Empire 361
Antiseptic, The Ideal..... 212
Appendicitis, Is It on the Increase? 270
King Edward's Recovery from. 382
Latest Cure for 228
Apples in Photography 96
Arizona's New Coffee 258
Arterio-Sclerosis, New Symptom in Diagnosis of 58
Asthma, Bronchial, Treatment of .. 237
Ataxia, Locomotor, Alcohol a Cause of 286
Atony, Vesical, Adrenalin in 154
Austria, Medical Practice in 151
Austrian Statistics 292

B

Baby. Not One Healthy in 150..... 196
Bacterial Night Lamp 91
Bad-Nauheim and Its Treatments... 332
BARRETT, DR. N. E., Transmission of Phthisis, with a Study of Medical Geography 361
Baruch, Dr., and the Great Unwashed 323
Basedow's Disease, Sulphanilate of Soda in 353
Bay Rum, Death from Drinking.... 356
Beer, on the Use of 127
Belgium, Death Sentences in 356
BENEDICT, DR. A. L. Child Labor.. 126
Social Problems Depending upon Diminishing Birth Rate 229
The Corset and the Intellect. 194
Wholesale Philanthropy 56
Benzoin as a Skin Remedy..... 169
BIBLIOGRAPHICAL:
ABRAMS, ALBERT. The Blues (Splanchnic Neurasthenia), Causes and Cure 88
Allen, Charles Warrene. Radiotherapy, Phototherapy, and High Frequency Currents..... 319
Arndt, H. R. First Lessons in the Symptomatology of Homeopathic Remedies 382
A System of Electro-Therapeutic Text-books 88
A Text-book of Legal Medicine and Toxicology 86
Bailey, Frederic R. A Text-book of Histology 350
Ball, James Moore's Modern Ophthalmology 253
Ball, M. V., Essentials of Bacteriology 380
Baker, Wm. F. A Syllabus of Diagnosis 152
Barker, Lewellys F. Description of the Brain and Spinal Cords of Two Brothers Dead of Hereditary Ataxia 55
Beebe, S. P. Outlines of Physiological Chemistry 381
Bell, Ralcy Husted. The Worth of Words 25

Bergy, D. H., The Principles of Hygiene 320
Bergmann, Bruns and Miculicz. A System of Practical Surgery. 151, 191, 252, 319, 348
Bickham, Warren Stone. Text-book of Operative Surgery 220
Bishop, Louis F. Blood Pressure 379
Bishop, Seth Scott. Diseases of Nose, Throat and Ear 381
Boehm, A. A. *et al.* Text-book of Human Histology..... 349
Boston, L. Napoleon. Text-book of Clinical Diagnosis 348
Brubaker, Albert P. Text-book Human Physiology 317
Buck, J. D. A Study of Man and the Way to Health 87
Cabot, Richard C. Guide to the Clinical Examination of the Blood for Diagnostic Purposes.. 196
Cathell, D. W. Book on the Physician Himself 118
Chapin, Henry Dwight. Theory and Practice of Infant Feeding..... 319
Cohn, Toby. Electro-Diagnosis and Electro-Therapeutics 220
Cornet, G. Tuberculosis and Acute General Miliary Tuberculosis .. 221
Crile, George W. Blood-pressure in Surgery 23
Croftan, Alfred C. Clinical Urinology 317
Da Costa, John Chalmers. Modern Surgery, General and Operative. 25
Dana, Charles. Text-book of Nervous Diseases and Psychiatry.... 349
Davis, Edward P. A Treatise on Obstetrics 350
Obstetric and Gynecolic Nursing 221
Davison, Alvin. Mammalian Anatomy 24
Delafield, Francis. Handbook of Pathological Anatomy and Histology 317
De Lee, Joseph B. Obstetrics for Nurses 118
Dudley, E. C. Treatise on the Principles and Practice of Gynecology 318
Edebohls, George M. The Surgical Treatment of Bright's Disease.. 381
Einhorn, Max. Diseases of the Intestines 152
Esenwein, J. Berg. How to Attract and Hold an Audience..... 55
Fischer, Louis. Infant-Feeding in its Relation to Health and Disease. 118
Fox, L. Webster. Diseases of the Eye 86
Galbraith, Anna M. The Four Epochs of Woman's Life..... 25
Gibbons, Edward E. The Eye, Its Refraction and Diseases..... 89
Gowers, William R. Subjective Sensations of Light and Sound.... 119
Grafstrom, Axel V. A Text-book of Mechano-Therapy 253
Griffith, Frederic R. A Handbook of Surgery 318
Hahnemann, Samuel. The Chronic Diseases 222
Halliburton, W. D. Essentials of Chemical Physiology 379
Hamilton, Allan McLane. Railway and Other Accidents, with Relation to Injury and Diseases of the Nervous System 252
Handbook on the Prevention of Tuberculosis 88
Hatcher, Robert A. Text-book of Materia Medica 318
Hillier, Alfred. The Prevention of Consumption 87
Howe's Handbook of Parliamentary Usage 119
Janeway, Theodore C. The Clinical Study of Blood-pressure..... 253
Jousset, P. The Pathogenic Microbes 87
Kilmer, Theron Wendell. The Practical Care of Baby..... 55
King, William Harvey. Medical Union Number Six 119
Kirke's Handbook of Physiology. 350, 381
Kyle, D. Braden. Diseases of the Nose and Throat 252
Kyle, John Johnson. Compend of Diseases of the Ear, Nose and Throat 23
Landois, L. Text-book of Human Physiology 282
Leavitt, Sheldon. Psycho-Therapy.. 24
Lenharz, Hermann. Manual of Clinical Microscopy and Chemistry.. 153
Leube, William V. Medical Diagnosis 222
Magee, M. D'Arcy, and Wallace Johnson. Epitome of Surgery.. 320
Mallory, F. B., and J. H. Wright. Pathological Technique 318
McFarland, Joseph. A Text-book of Pathology 320
McGlannan, Alexius. Organic and Physiological Chemistry..... 55
Mitchell, Clifford. Diseases of the Urinary Organs, including Diabetes 24
Monro, Thomas Kirkpatrick. Manual of Medicine 24
Morris, Henry. Essentials of Materia Medica and Prescription Writing 380
Morrow, Prince A. The Relation of Social Diseases and Marriage.. 88
Muir, E. Stanton. Manual of Materia Medica and Pharmacy 190
Musser, John H. A Practical Treatise in Medical Diagnosis 191
Nagel, Joseph Darwin. Nervous and Mental Diseases 349
Nancrede, Charles B. Essentials of Anatomy 380
Noorden, Carl Van. Clinical Treatise on the Pathology and Therapy of Disorders of Metabolism and Nutrition 24
Norton, A. B. Essentials of Diseases of the Eye 318
Nothnagel, Hermann. Diseases of the Intestines and Perineum.... 220
Oppenheim, H. Diseases of the Nervous System 86
Ott, Isaac. Text-book of Physiology. 190
Overall, George Whitfield. A Non-Surgical Treatise on the Diseases of the Prostate Gland and Adnexa 25
Parsons, Frank. The Story of New Zealand 221
Pattee, Alida Frances. Practical Dietetics in Disease 379
Pearce, F. Savary. A Practical Treatise on Nervous Diseases... 119
Penrose, Charles B. A Text-book of Diseases of Women..... 318
Pilgrim, Maurice F. Mechanical Vibratory Stimulation 190
Price, Eldridge C. A Philosophy of Therapeutics 380
Pusey, William Allen. The Practical Application of the Roentgen Rays in Therapeutics and Diagnosis 319
Rabies: Its Place among Germ Diseases and its Origin in the Animal Kingdom 86
Reed, Boardman. Lectures on the Diseases of the Stomach and Intestines 349
Robinson, Byron. Arteria Uterina Ovarica 253
Roger, G. H. Infectious Diseases.. 22
Roosa, D. B. St. John. Handbook of Anatomy of Diseases of the Eye and Ear 381
Rosenbach, O. B. Physician vs. Bacteriologist 381
Sachse, Helena V. How to Cook for the Sick and Convalescent.... 349
Saxe, G. A. De Santos. Examination of the Urine 349
Schaefer, O Atlas and Epitome of Operative Gynecology 119
Schofield, Alfred T. Unconscious Therapeutics 254
Scudder, Chas. L. The Treatment of Fractures 87
Shambaugh, George E. The Distribution of Blood-vessels in the Labyrinth of the Ear of Sus Scrofa Domesticus 25
Shaw, John C. Essentials of Nervous Disease and Insanity 380
Simon, Charles E. Manual of Diagnosis by Microscopic and Chemical Methods..... 151
A Text-book of Physiological Chemistry 350
Spratling, William P. Epilepsy and its Treatment 221

Stoney, Emily A. Materia Medica for Nurses 252
St Clair, W. T. A Compend of Medical Latin 381
Stelwagon, Henry W. Treatise on Diseases of the Skin 154
Stengel's Pathology 23
Stevens, A. A. Manual of the Practice of Medicine 25
Taylor, Robert W. Genito-Urinary and Venereal Diseases and Syphilis 320
Thayer, Alfred Edward. A Compend of Pathology 23
Thomson, William Hanna. Graves' Disease 190
Thornton, E. Quin. *Medical News* Pocket Formulary 190
Tuley, Henry Enos. Epitome of Pediatrics 190
Van Schaick, George Gray. Regional Minor Surgery 350
Wellman, Francis I. The Art of Cross-examination 381
Wilson, J. C. The Compendious Medical Pocket-Formulary and Physicians' Vade-Mecum..... 87
Wolff, Lawrence. Essentials of Chemistry 349
Yeo, I. Burney. The Therapeutics of Mineral Springs and Climates... 191
Birth-rate, Sociologic Problems Depending Upon 229
BISHOP, DR. L. F. Disorders of the Circulation 174
Functional Disorders of the Liver 89
Remarks on Pneumonia, with a Case of the Acute Tubercular Form 105
Blood, Human, Differential Recognition of 123
Bloodless Operation, Statistics of... 292
Birds that Avoid Contagious Diseases 32
"Black Eye," Treatment of..... 356
Blind, Diagnostician, A..... 257
Blind, The City's..... 320
Blue Light a Good Anesthetic 356
Brain, Male, Weight of the..... 32
Boots and Shoes, Vegetable..... 60
Bread and Fruit Diet..... 128
Bread Made with Sea-water 32
Breakfast, a Substantial..... 128
Brehmer, Dr. H..... 379
Bright's Disease, Diet in..... 158
Bunions 121
Buried under a Pile of Snow..... 292
Butter, Imitation 64

C

Cancer, A Cause of..... 324
Cause of 96, 128
Inoperable, Formalin for..... 153
Of the Larnyx and of the Breast 77
Of the Stomach, Diagnosis of. 193
Canned Meats, Danger of.....96
Carbuncles, Treatment of, with Liquid Air 27
Carburetted Gas, Danger of..... 388
Cardiac Cases, Necessity of Studying Detail in..... 177
Cardiac Failure, Sign of..... 368
Carcinoma of the Choroid 276
Catarrh, Spring, Autumnal, and Asthma 103
Catheter, When to Pass, after Labor. 196
Catheter, Aseptic Method of Introducing 222
Catheter, Female, to Pass..... 324
Catheter Fever, Camphoric Acid as a Prophylactic Against..... 222
Centenarian Statesman, A..... 374
Charge, The, for Medical Services.. 153
Chaves, Juan, Aged 134..... 388
Chemistry, Physical 96
Chicago, Medical Schools in..... 213
Chicago's Death-rate 32
Chicago University, New Hospitals and Laboratories for..... 160
Childhood, Peculiarities of, in Diseases 202
Child Labor 126
Children, Natural Feeding of, at Term 289
Children, Phases in the Treatment of. 70
Chinese Mode of Life..... 196
Chinese National Intoxicant..... 138
Chloral Hydrate as a Solvent..... 354
Chloroform Anesthesia, Safety Pump for 290
For Children 244
Preservation of 322
Chlorosis—The Use of Iron..... 507
Cigar Smoking, Hygiene of..... 383
Circulation, the, Interpretation and Care of Disorders of..... 174
Circumcision Pad, A..... 317
Cirrhosis of Liver, Case of Suspected 124
Climate, Search for Health in the Various Phases of..... 299
Climatotherapy, Congress of 388
Clinique, The 383
Club-foot, Treatment of..... 62
Coffee Jelly 154
Coffee Heart 388
Coin in the Larynx 193
Cold, Way to Cut Short a..... 186
Congress, International Tuberculosis. 135
Constipation, Chronic 321
Mechanical Treatment of..... 160
Treatment of, through Hypnotic Suggestion 223
Consumption, Dog-oil for 228
The Cure of..... 280
Consumptives, Forbidding Barbers to Shave 227
Shall We Make them Social Outcasts? 16
COOLIDGE, DR. J. W. Maternal Impressions 107
Corea, Dentist Wanted by the Emperor of 324
Corns, Hard, Do not Cut or Pare Them 354
Corset, the, and the Intellect..... 194
Coughing, Sipping of Fluid to Relieve 260
Cream as a Food 154
For Home Modification of Milk 291
Of Tartar, Prize for Producing 196
Cremation, Weight after 96
CURTIS, DR. G. L. Restorative Influence of Ozone upon the Blood.. 65
Cyanide of Cacodyl 159
Cystitis and Pyelitis, Differential Diagnosis between 202
Cystoma, Epithelial, of the Conjunctiva 244

D

Damiana as used at Home 355
Danger to Life, New Cause of..... 350
Dead Line, the 356
Deaf People, Should they Marry?... 335
Depilatory, a Safe and Effective.... 331
Depressant Drugs and Sudden Deaths 90
Diabetes, Dietetic Treatment of..... 322
Oatmeal in 122
Potatoes in 255
Diabetics, Anesthetization of..... 382
Diarrhea, Infantile, Gelatin in..... 254
Dietetics 16
Digitalis, Limitations of..... 354
Diphtheria, Dietetic Suggestions in.. 80
Dislocation of Long Tendon of Biceps 61
Dose, How to Determine the Sufficient 192
Drinking-water, Purification of..... 223
Dropsy, Hepatic, Cardiac and Renal, Nature and Treatment of..... 368
Drugs, Historic 264
Drunkenness, Institution for Cure of 128
Dunning, Dr. Emily, House Surgeon. 356
Dutch Pharmacopeia, The..... 160
Dwarf Growth of To-day and in the Past 94
Dystocia, Diet in the Control of.... 255
Dysuria, Diagnosis, Causes and Treatment of..... 43

E

Ear, $5,000 for an 160
Eclampsia, a Clinical Study of..... 273
Puerperal 67

Economics, Household 95
Edema of the Lungs due to Subcutaneous Injection of Artificial Serum 192
Edict by the Czar 388
Editorials:
Acute Alcoholism and Traumatisms 184
Alcohol in Tropical Climates..... 189
A Plea for the Superficial Student. 342
Cerebrospinal Meningitis 248
Cocoa Drinking 150
Conventions and the Railroads.... 214
Dietetics as Ordained by Mosaic Dispensation 116
De we Eat too Much?..... 250
Dr. Lewis S. McMurtry..... 251
Dr. Robert Fulton Weir..... 110
Dr. Shrady's Retirement..... 309
Dr. Walter Reed 277
Ethyl Chlorid as a General Anesthetic 187
Exit the Coroner..... 146
Fecal Fistulæ in the Treatment of Typhoid Perforation 188
Field-Surgery Extraordinary 85
Gratuitous Services of Physicians. 80
Helen Keller 251
Herbert Spencer 17
Home Treatment of the Consumptive Poor 249
How About the Honor of the Man? 54
How Early in Life can a Good General and Medical Education be Had? 277, 309
How Rice is Prepared for Use in this Country 283
How to Commence a Medical Article 314
Improvement in the Calculation of Milk Mixtures 83
Individual Prophylaxis 218
In Honor of Dr. Roosa 113
Insurance for Physicians 283
Isolation of Small-pox in Germany 25
Matter is Electricity 344
Medical Examinations 114
Medical Treatment of Gynecologic Cases 347
Miners' Phthisis 316
Opportunities for Medical Men.... 247
Opticians and Ophthalmologists.. 82
Patent Medicines in Germany.... 20
Peace and Good Fellowship..... 181
Physicians at Panama 249
Physicians and the Vacant Niches in the Hall of Fame..... 144
Physician and Bacteriologist 316
Professional Eaters..... 118
Prophylaxis of Digestion..... 186
Prostatic Hypertrophy—Philosophy of its Successful Treatment..... 285
Protozoal Diseases—Trypanomiasis 148
Puerperal Eclampsia, as found by the Specialist 49
Radium and the Transmutation Hypothesis 19
Recent Advances in Cerebral Localization 373
Refinements in Milk Handling 282
Religion and Science 378
Responsibility for Advertisements. 50
Sanatoria for the Tuberculous Poor 281
School Hygiene 315
Sex Control 316
Should the Medical Student Receive Cheap Professional Education by State or Private Endowment of Colleges?..... 182
Spurious Pregnancy 20
St. John's Guild 251
Stokes-Adams Disease 20
Successful Treatment of Nephritis by Exclusion of Salt..... 53
Surgery in Nephritis 219
Tablet to Dr. Guernsey 182
Tenement House Department..... 347
The American Medical Association 213
The Aquiline Nose..... 251
The Blind Boycotted 185
The Cases of Pulmonary Tuberculosis Suitable for Sanitoria..... 186
The Cost of Medical Education... 146
The Connection between Insanity and Civilization 312
The Death-rate from Alcoholism.. 149
The Economic Aspect of the Meat Question 375
The Economic Functions of Medical Societies 245
The Father of Laryngoscopy 185
The Harveian Discovery..... 284
The History of Tuberculosis 218
The Idea of the Personal Equation of the Patient as a Factor in Surgical Operations 51
The Inspection of City Milk..... 317
The Imperishable Coroner..... 215
The Latest Views on Radio-Therapy 18
The Measurements of Science.... 147
The Medical Conscience 117
The Medical Expert 21
The Most Delicate Test for Arsenic 250
The Necessity of the Diagnosis of Glaucoma by the General Practitioner 188
The Negation of the Will-to-live.. 284
The New Pharmacopeia..... 215
The New Year 17
The Passing of Neurasthenia..... 247
The Pendulum 83
The Physician in the Treatment of Sexual Conditions 22
The Prevention of Disease 313
The Publication of Society Proceedings 19
The Public Health..... 55
The Red-Light Treatment of Smallpox 53
The Relation between Professional Education and General Education 81
The Relief of the Various Forms of Hernia 84
The Scientific Cure of Seasickness. 374
The Search for a Positive Test for Human Blood 115
The Sexual Pervert in Responsible Positions 52
The Stomach 347
The Study of Dietetics 145
The Success of an Incomplete Water Supply 149
The Temperature as a Guide in Various Diseased Conditions of the Brain 341
The Theory and Practice of Immunity 344
The Tongue in Disease 150
The Training of Patients..... 314
The Unification 81
To those about to Study Medicine —Don't 346
Tuberculosis and the Jewish Food Regulations 187
Unto the Third and Fourth Generation 216
Uranium in Medicine 49
Weather Influence 377
X-Ray Warnings 346
Effusion, Sign of 138
Eggs, to Preserve 128
Eggs, Value of, in Disease 122
Electric Bell to Warn off Erection... 259
Electric Current Accident..... 64
Electricity in Medicine, The Status of 208
Epesculapian, An 151
Epilepsy, Data Wanted Bearing on.. 356
Epilepsy, Notes Regarding..... 329
Epileptic Fit, to Arrest an..... 279
Ether, First Administration of, in Labor 195
Ethics, Medical 288
Evans, Dr. T. H. Notes Regarding Epilepsy 329
Examination Questions..31, 95, 112, 159, 227, 259, 291, 323
Exercise, Physical, the Need of..... 37
Exertion, Immoderate Physical, a Factor in Etiology 97
Expert Testimony, Medical..... 144
Eye Diseases, Egyptian 119
Eye, Photographing Background of the 388
Eye-strain, Cases due to 325
How to Treat it Intelligently. 169
Illustrative Cases of..... 357
Proof of..... 144

F

Faintness, Rapid Relief of..... 96
Fasting, Prolonged, as a Factor in the Treatment of Acute Diseases... 223
Fat, Craving for, in Tropics..... 228

Febrile Cases, Suggestions for..... 192
Feeding through Closed Jaws..... 128
Fees, Excessive Medical, Illegal 289
Feet, Care of the, from a Medical Standpoint 41
Felon, Alcohol to Abort a..... 150
Fevers, Sugar as Food in..... 60
Filter-plant, Statistics of a..... 32
Finances, the Physician's 161
Finger, Amputated, Replaced with Success 160
Fish, A, walking 40
FITCH, DR. M. E. Gonorrhea as seen and Treated by the General Practitioner 200
Recent Advances in the Study of Heart Conditions..... 74
Flowers, to Preserve..... 128
Wholesome Breath of..... 383
Food as a Remedy 122
Foreign Bodies from Esophagus, to Remove 96
Formaldehyde with Glycerin..... 282
Fractures, Compound, Balsam of Peru Treatment of..... 192
Fracture through the Anatomic Neck of the Uterus..... 224
France, Care of Poor Children in.... 195
Freezing and Chilblains, Superheated Air in Treatment of 254
Frost-bite, Alcohol for..... 388
Fruit Remedies..... 59
Fruits, How they Act..... 90

G

Gangrene, Treatment of, with Turpentine 290
German Supreme Court, The..... 388
Glandular Enlargement in Children, Nature and Treatment of..... 364
Gloves, Protective, in Typhoid..... 291
The Use of, in Surgical Operations 196
Goiter, Exophthalmic, Natrum Salicylicum in.....58, 120
Gonorrhea as Seen and Treated by the General Practitioner..... 200
GORTON, DR. D. A. Toleration in Medical Opinion and Practice.. 136
Gout and Nephritis, Vegetarian Diet in 59
Gout in this Country..... 196
Great Britain, Number of Physicians in 228
GRIFFITHS, DR. G. W. Eclampsia... 67
Gynecological Experience of a General Practitioner 241

H

Haec Mea Ornamenta 258
HAMMER, DR. T. M. The Diagnosis of Rachitis 270
Hand-organ in a Lying-in Infirmary. 228
Hand-shaking, Danger in 228
Harvard Medical School, New Buildings for 64
Hay Fever, Local Treatment of..... 353
Treatment of 120
HAYWOOD, DR. H. M. Value of Prognosis in Chronic Diseases 266
Headaches, Ocular, Characteristics of 122
Health Insurance, vs. Tuberculosis.. 48
Day, A General..... 96
Healthy Points, Two..... 196
Heart Conditions, due to Anemia and High Arterial Tension..... 11
Recent Advances in the Study of 74
Disease, Drugs in Treatment of 351
New Method of Testing the.. 352
Heat without a Fire..... 292
HEBBARD, DR. E. C. Life and Potentialities in their Control over Matter 33
He Followed the Medical Profession. 96
Hemorrhoids, Postural Treatment of 58
Hemostasis, Electrothermic 125
Herbs, Indian Collection of..... 292
Heroism, To Destroy..... 259
Home for the Aged, A..... 260
Horse, Bequest to a..... 299
Horseflesh in Paris Hospitals..... 193
Hospital Bookkeeping 155
Hospital for Incurables..... 324
Hospital, Old, to Disappear..... 96
Hospital Wards, Small..... 340
How to Act when another Physician's Name is Mentioned.... 324
HUBER, DR. J. B. Disposition of Infectious Matter in Tuberculosis 261
Etiology of Tuberculosis 137
Marriage and the Offspring with Regard to Tuberculosis. 339
Observations on Tuberculosis. 176
Humbugs, Crusade against..... 258
HUNTER, DR. O. W. Notes on Management of the Insane..... 3
Hutchinson, Mr. Jonathan..... 64
Hydrocele of Neck..... 61
Hygiene, A Matter of..... 57
Hygiene, Teaching the Rules of..... 324
Hypnotic, A New 48

I

Idiophone, The..... 289
Illegal Practice, Fine for..... 64
Illuminating-Gas Poisoning..... 30
Impressions, Maternal..... 107
Impulse, An Irresistible..... 324
Infant-Feeding, Whole Milk in..... 59
Infection of Wounds from Speaking During Operations..... 286
Infectious Diseases, Journal of..... 196
Influenza, Interesting Features in... 38
Insane, Nurses for the..... 355
Insane, the, Notes on Management of 3
Insanity, Complexions and..... 356
Insurance, Pre-Nuptial 259
Intestine, Large, Removal of..... 321
Invalid, Sir H. Acland's Notion of an 64
Ivy Poisoning, Hot Water for..... 153

J

JACQUEMIN, DR. I. J. Immoderate Physical Exertion a Factor in Etiology 97
Japanese, Diet of the..... 322
Japanese Treatment of Wounded Men 354
Japan, Death-rate of Children in.... 189
Japan, Infectious Diseases in..... 343
Japan's Scientific Husbandry..... 388
JOHNSON, DR. G. R. Diagnosis, Causes and Treatment of Dysuria 43
Nature and Treatment of Varicose Veins 141
Spring, Autumnal Catarrh, and Asthma 103
The Fight Against Tuberculosis 304

K

Kidney, Movable, Postural Treatment of 354
Kidney, Solitary 293
Koch's Resignation, Professor..... 260
Kumys 287

L

Labor, Oxygen as an Aid in..... 255
Labors, Natural, Management of.... 255
Lay Press, Request to the..... 160
Lead Poisoning 260
Lecithin 120
LEONARD, DR. A. M. Clinical Study of Eclampsia 273
Nature and Treatment of Hepatic, Cardiac and Renal Dropsy 368
Water and Air in their Relation to Disease 139
Letter-heads, Curious 292
Life and the Potentialities 33

Life, Human, Value of..... 324
Lines, Dr. Amelia Wilkes..... 388
Linsley, Dr. Jared, Memorial to.... 356
Lister Institute, The 64
Liver, Diet in Diseases of..... 322
Liver, Functional Diseases of..... 80
Lloyd, Dr. W. Treatment of Bronchial Asthma 237
Longevity in a Feeble Youth..... 228
Lot's Wife 160
Lunacy, Examination in..... 64
Lupus, Treatment of, with Turpentine 290

M

MacGregor, M.D., Sir William..... 285
Magic, Library of Works of..... 64
Malthus, Up-to-Date..... 355
Malarial and Other Fevers, Advances in 138
Malaria, The Spreading of, by Mosquitoes 154
Masturbation and Enuresis 222
Maternity, Precocious 95
Mathematics, Higher, Knowledge of, Required 324
M'Crory, Dr. M. Peculiarities of Childhood in Diseases..... 202
Problems in Surgery 46
Medical Course Lengthened..... 196
Medical Responsibility 226
Medical Society of the State of New York, Value of Charter of..... 26
Medicine Man of To-day, The American 260
Metals, Infected 144
Microbes and Magistrates..... 320
Microscopes, Powers of..... 308
Milk, Acid, Creamless, in Gastro-enteritis 383
Milk, Condensed, to be Investigated. 287
Cow's, The Soluble Ferments of 353
Errors Respecting the Acidity of 59
Fever, Oxygen Treatment for.. 260
Freezing of..... 26
Serum as Medicine 63
Tickets, Sanitary 64
To Determine the Quantity to be Given Artificially Fed Children 90
Miller, Dr. C. C. Internal Urethrotomy for Stricture at or Near the Bulbo-Membranous Juncture 197
Millican, Dr. Kenneth W..... 348
Miscellany..32, 64, 96, 128, 160, 196, 228, 260, 292, 324, 356, 388
Mistakes we have Inherited..... 62
Money, Proposed Sterilization of.. 95
Morphinism, Hyoscin in Treatment of 58
Mothers, Instruction for..... 196
Mueller's Orphanage 64
Music, Therapeutic Possibilities of. 193

N

Nail in the Lungs..... 193
Nauheim, Bad, and its Treatments.. 295
Nephritis, Acute, in Children..... 60
Tonsilitis a Cause..... 382
Dietetic Treatment of..... 287
Scarlet Fever, Urotropin as Prophylactic of..... 154
Types of 28
Nerve Impulse, Speed of..... 160
Nervous and Mental Diseases, Electric Wet Packs in..... 15
Diseases, Recent Researches in 5
Nervous Persons, Newspaper for 5
Neuralgia, Facial 16
Electric Treatment of..... 89
Subcutaneous Injections of Atmospheric Air in..... 15
Neuro-Muscular Apparatus, Disease of the 225
Nitrogen from the Air in Agriculture 160
Nodium, The Metal 246
Nose Pulling as a Reviver..... 354
Nurses, Trained Brutality of..... 16
Nutrition, Subcutaneous 123
N-Rays, The 276

O

Obituary:
Bartholow, Roberts, M.D., of Philadelphia 182
Finsen, Niels, Professor, of Copenhagen 345
Marey, Professor, of Paris..... 324
Paine, Horace Marshfield, M.D., of Albany 31
Obstetric Operation..... 225
Obstetrics, Examination in..... 63
Forceps and Other Mechanical Aid in: Use and Abuse.... 9
Odor, The, of the White Race..... 63
Office Building for Doctors, A New. 95
Ohio, Marriage Rules in..... 356
Operating Room, The..... 96
Operations, Famous, in Surgery, as Described by their Originators.. 109
Organisms, Living, Endurance of.. 103
Osler, Dr., to go to Oxford..... 223
Oysters, Digestibility of..... 128
Ozone for Purifying Water..... 32
Restorative Influence of, upon the Blood 65

P

Panama, Physicians for..... 324
Pan-American Congress, The..... 387
Pan-American Medical Congress, Fourth 324
Pancreatic Duct, Remarks on..... 99
Paraffin, Blindness from Using.... 32
Waterproofing by..... 57
Paralysis Agitans, Treatment of Tremor in 59
Paris, Dietary Economy in..... 196
Medical, Dean of..... 32
Parturition in Absentiâ..... 388
Patent Medicines in the Mails..... 324
Pavilion, New, for Private Patients. 96
Pearls, How to Care for..... 128
Pelvic Disease after Labor, Prevention of 158
Philanthropy, Wholesale 56
Photography, Dark Room in, Obviated 64
Phthisis, Transmission of, with a Study of Medical Geography. 361
Treatment of..... 227
Piano Practice, Nervous Diseases from 32
Pizzati, Capt. Salvatore 388
Plants, Two, Charged with Cruelty. 371
Plush-seat Covering in Railcars under Ban..... 388
Pneumonia, How to Kill a Baby with 292
Infectivity of 323
Prophylaxis of 90
Remarks on, with Case of the Acute Tubercular Form.... 105
Toxin and Anti-Toxin of.... 131
Powder Stains, How to Remove.... 324
Pow-wow Doctor, A..... 388
Pratt, Dr. J. T. Status of Electricity in Medicine..... 203
Prediction, A Highly Important.... 356
Present to His Patients..... 153
Preservatives, Milk, Deaths from.... 128
Prognosis, Value of, in Chronic Diseases 260
Prostatic Hypertrophy, Does Gonorrhea Cause? 321
Prostatitis, Vibration Massage in.. 280
Psychoses, Severe, Methylene Blue in 260
Puerperal Sepsis, Etiology and Diagnosis of 8
Pulse Register, The..... 324
Purifying Water by Electricity..... 228
Purpura Hemorrhagica, Lemons in. 89
Putrid Meat, Utilization of..... 63

R

Rabies, Pasteur Treatment said to Cause 160
Rachitis, Diagnosis of..... 270
Radio-Active Wool 388
Radium, An Effect of..... 32
Found in Canada 160
In Solution 85

In Therapeutics 321
Rays, Physiologic Action and Therapeutic Application of. 193
Renting 292
Railroad Service, Through, to China. 228
RANNEY, DR. A. L. Cases due to Eye-Strain 325
Treatment of Eye-Strain 169
Rectum, How to Feed by..... 64
Resistance, Power of..... 96
Reynolds, Dr. G. R. Necessity of Studying Detail in Cardiac Cases 177
Rheumatism, Climate of Seville for.. 289
Rickets, with Clinical Illustrations of Knock-knee 308
Ringworm, Hospitals for Treating.. 228
ROBINSON, DR. B. Remarks on the Pancreatic Duct from Corrosion and X-Ray Anatomy 99
Solitary Kidney 293
Rockefeller Institute 285
Roentgen Ray Congress..... 260
ROHLF, DR. W. A. Forces and Other Mechanical Aid in Obstetrics: Use and Abuse 9
Royal Total Abstainers..... 55
Rubber Goods, Preservation of.... 260

S

Saké, Japanese 372
Salicylic Acid Harmful..... 155
Scarlet Fever Origin 30
Searchlight, Biggest 372
Seasickness, Ice Air for..... 292
Petroleum in 122
Self-Dieting, Morbid 222
Serum, Anti-Anthrax, Prize for.... 32
SHELLENBURG, DR. M. Cancer of the Larynx and of the Breast.. 77
Heart Conditions due to Anemia and High Arterial Tension 11
Interesting Features in Influenza 38
Syphilis in its Relation to Marriage 205, 233
Should the Physician Patent his Rights? 387
Sight, Restoration of, in one Born Blind 62
Skin Diseases, Dietetic Treatment of 287
Sleep, Prolonged, Extraordinary Case of 194
Proper Amount of..... 125
Soap Spirits as a Disinfectant..... 160
Sphygmograph, Improved..... 228
Spinach, Cultivating Iron in..... 288
SPRAGUE, DR. J. S. Medical Ethics. 289
Starvation, Death from 96
State Medical Examinations..... 141
Stature, Comparative Table of..... 32
Stools, Simple Method of Examining, for Solid Bodies 286
St. Petersburg, Death Rate of..... 159
Stricture, at or Near the Bulbo-Membranous Juncture, Internal Urethrotomy for..... 157
Of Esophagus, Radium for.. 260
Styes, Uranium Nitrate for..... 260
Substitution 128
Suicide among Physicians 196
Extraordinary Case of..... 356
New Way of Committing.... 96
Sunstroke 258
Prevention of..... 254
Surgery, Problems in..... 46
Syphilis in its Relation to Marriage. 205, 233
Cerebral, Manifestations of... 157

T

Tabes, Nitrate of Sodium in Treatment of..... 382
Tableware, Unbreakable 288
Tangelo, The 323
TAYLOR, DR. H. Care of the Feet from a Medical Standpoint 41
Tea Cigarette, The 388
Telephone, Mental 348
Telephone, The, as an Alcoholometer 340
Temperament in its Relation to Organic Reflexes 265
Temperature, Proper, for Work..... 128
Therapeutics, Retrospective..15, 58, 89, 120, 153, 192, 222, 254, 286, 321, 351, 382
Thistle, The North American..... 324
Tobacco Chewer, Inveterate, Dies at 102 292
Deafness 58
Tokio, Bathing in 388
Toleration in Medical Opinion and Practice 136
Tongue, Importance of the, in Diagnosis 321
Tonsillitis, Acute, Treatment by Local Application of Tinct. Iodine. 121
Trance Dancer, The..... 353
Tropical Medicine, Degree in..... 228
Tuberculosis, Disposition of Infective Material in.....171, 276
Tuberculosis, Etiology of..... 137
House Infection of..... 254
Infirmary of the Metropolitan Hospital 57
International Congress for Study of 324
Kumyss Treatment in..... 353
Laboratory Conception of.... 387
Municipal Crusade Against... 290
Marriage and the Offspring with Regard to 339
Relation of Fat Food and Adipose Tissue to Production of 286
Of Joints and Bones; Sunshine and Fresh Air *vs.* the Finsen Ultra-Violet Rays 122
Special Communication on.... 347
The Fight Against.....304, 348
Vaccination Against 292
Tulane University Medical College, Endowment of 292
Tumors, Vascular, Hot Water Injections in 120
Typhoid Fever, Chloroform in..... 15
Diagnosis of 58
Pneumonia Complications 157
Relation of Severe Lesions in, to Nervous Symptoms 157
Serum Treatment of 160
Infection from Railroad Car Closets 286

U

Uhlenhuth Test, The 128
Ulrich, Dr. A. N. Nature and Treatment of Chronic Glandular Enlargement in Children 364
Ultra-Microscopic Examination of Fluids 290
Urinary Analysis, Corroborative Method of 101

V

Vaccination during Pregnancy..... 110
The Law as to 30
What Constitutes?..... 291
Vaccine, Chloroform in the Preparation of 31
Vacuum, A Perfect 195
Varicose Veins, Nature and Treatment of 141
Vaselin Oil, To Increase Power of Lens 32
Ventilation, Imperfect, in Philadelphia Hospital 199
Victoria Cross, The, and Army Surgeons 260
Vomiting, Oxygen Inhalations for.. 286

W

Wasp, Domesticating the 160
Water and Air in Relation to Disease 129
To Determine the Presence of, in Alcohol 112
Sterilization of 191
Wattenlaufen—A Therapeutic Sport. 122

Weight, Experiments as to 196
Whooping-Cough, Treated by Pulling the Lower Jaw 89
Wiener, Dr. Joseph 289
WILLIAMS, DR. C. Recent Researches in Nervous Diseases..... 5
WILSON, DR. F. C. The Toxin and Anti-Toxin of Pneumonia 131
WILSON, DR. G. R. Phases in Treatment of Children 70
Woman, First Medical Degree to a.. 292
A, in a University Chair..... 96
WORMLEY, DR. W. Famous Operations in Surgery 109
Wounds, Closure of 121
Wrestling at Naval Academy 291
Wrinkles, Obliteration of, by Use of Adhesive Plaster..... 121

X

Xanthoma 155
X-Ray Prizes 196
X-Ray Stereoscopy 128
X-Ray Tube, An, which Generates a Rich Quality and an Abundant Quantity of Bi-Ultra-Violet Rays in Combination with the X-Rays 256

Y

Yearly Paper, A..... 32
Yeast Pastilles 199
YOST, DR. A. K. The Search for Health in the Various Phases of Climate 299

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FORMULA: Each half-litre bottle represents two ounces of specially selected, blended Coca leaves with nutritious Bordeaux Wine.

THE FOLLOWING GOVERNMENTAL ANALYSIS sustains our statements as to the purity of Vin Mariani.

French Analysis

QUANTITATIVE ANALYSIS NUMBER 247.

The Director of the Municipal Laboratoire de Chimie certifies that Vin Mariani represents exactly:

Density, at 15° C.	1.014
Alcohol, percentage in volume, at 17°	17.07
" by weight, per litre.	142.9
Extractive, at 100° in grams, per litre	87.36
Sugar, before inversion, per litre	41.60
" reduced after inversion, per litre	68.80
Sulphate of potassium, in grams, per litre	0.91
Tartrate, in grams, per litre	1.85
Ash	2.24
Acid, calculated as sulphuric	3.13
Acid sulphurous	none
Acid salicylic	none
Saccharin	none
Coloring matter	nothing abnormal
Deviation of polarimeter, before inversion	+2°44
" " after inversion	−2°16′
Coca bases, combined, in grams, per litre	0.220

Signed; GIRARD, *Chemist.*

Paris, France, March 24, 1900.

Literature sent to Physicians on request.

Written Endorsements from more than 8000 Physicians.

Vin Mariani

PRESENTING THE PHYSIOLOGICAL QUALITIES OF TRUE COCA WITH NUTRITIOUS BORDEAUX WINE

A NEURO-MUSCULAR STIMULANT

ADJUVANT IN

Malnutrition, Convalescence, Debility, Wasting Diseases, Grippe, Neurasthenia, and Allied Conditions from any cause.

A UNIQUE RESTORATIVE-TONIC

that for nearly half a century has continued unequalled.

MARIANI AND COMPANY.
MANUFACTURING CHEMISTS AND PHARMACISTS,
PARIS, FRANCE.

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B'd Haussmann, 49	Haymarket. 56	Charlotten St.	87 St. James St.

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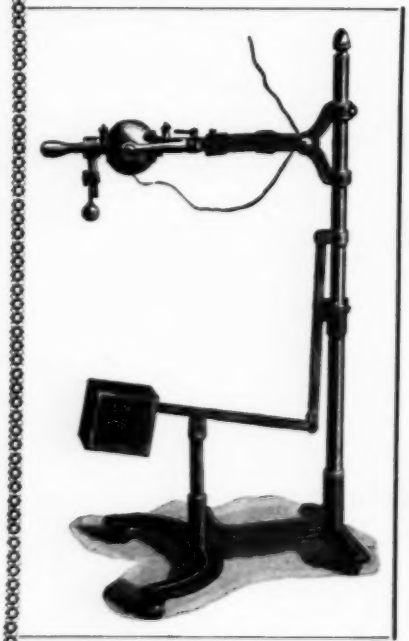

Pressure Causes Absorption

(SEE ANY TEXT-BOOK ON SURGERY.)

Remove Strictures by the absorption induced through "Intra-Urethral" pressure exerted by the

"CHATTANOOGA" VIBRATOR

Painless to the Patient

Results show from the time of first treatment

CATALOGUE AND PARTICULARS ON APPLICATION.

VIBRATOR INSTRUMENT CO.

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NEW YORK OFFICE: 640 Madison Avenue.

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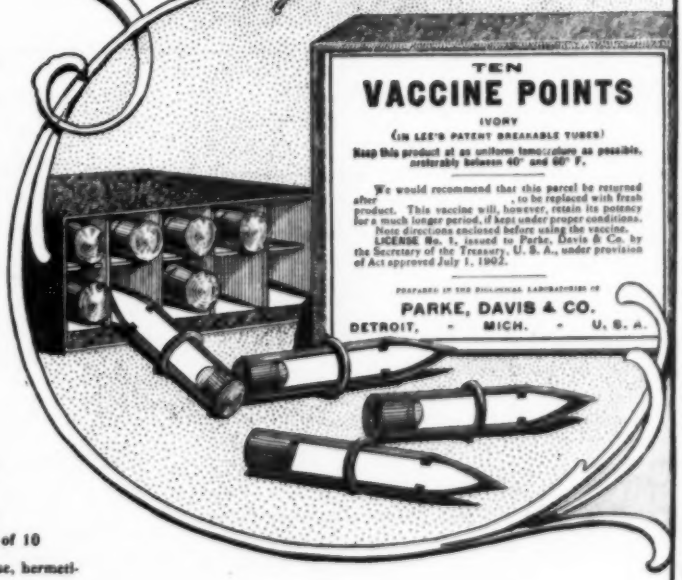
VACCINE
(GLYCERINATED)
BACTERIOLOGICALLY & PHYSIOLOGICALLY TESTED

THE scrupulous care which we give to the preparation of our Vaccine, and the rigid bacteriologic and physiologic tests to which we subject every parcel of it, are positive guaranties of its purity and activity.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VACCINE POINTS
IVORY
(IN LEE'S PATENT BREAKABLE TUBES)
Keep this product at as uniform temperature as possible, preferably between 40° and 60° F.
We would recommend that this parcel be returned after , to be replaced with fresh product. This vaccine will, however, retain its potency for a much longer period, if kept under proper conditions.
Note directions enclosed before using the vaccine.
LICENSE No. 1, issued to Parke, Davis & Co. by the Secretary of the Treasury, U. S. A., under provision of Act approved July 1, 1902.
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Capillary Glass Tubes, hermetically sealed, boxes of 10 tubes and 3 tubes.
Ivory Points, each in a Lee's breakable glass case, hermetically sealed, boxes of 10.

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$100.00 A Bottle Guarantee of Purity $100.00

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GLEASON'S APPLE JUICE

DOUBLE GUARANTEE.

Absolute Purity and Better than Other Brands or Money Refunded.

Clear! Sparkling! No Cooked Taste!
Delicious Flavor! Exquisite Bouquet!

If you Prescribe Fruit Juice, Prescribe Gleason's. IT'S PURE.

Free Sample to Physicians.

Gleason Grape Juice Co.,
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IODIPIN An organic liquid combination of iodine. Is now a standard preparation, possessing all the therapeutic value of the iodides without their disadvantages. The only iodine compound eligible for hypodermic administration. Specific action in lues, scrofula, glandular enlargements, etc. In 10 and 25 per cent. strengths. Well worthy a trial in your practice.

BROMIPIN An organic bromine compound, analogous to iodipin. Renders excellent service in epilepsy.

ICHTHYOL The sovereign antiphlogistic. No single remedy or combination of remedies is capable of doing so much in all forms of inflammation as is ICHTHYOL. A *specific* in erysipelas. An indispensable remedy in gynecologic practice. Numerous imitations of ichthyol have appeared and are appearing from time to time. The profession is earnestly cautioned against the use of those imitations and so-called substitutes for ICHTHYOL, as besides being worthless many of them are distinctly injurious and irritating. Always specify *Ichthyol Merck.*

THIOCOL ROCHE Potassium guaiacol sulphonate. A water-soluble, absolutely non-irritating, readily assimilable form of guaiacol. Entirely devoid of the odor and taste of guaiacol or creosote. Its great value in tuberculosis, in the various forms of bronchitis, etc., testified to by the highest authorities. Supplied in three forms: powder, 5 grain tablets, and syrup thiocol Roche (6 grains to the fl. dram).

Clinical Reports on Application

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COLLARGOLUM
(Soluble metallic silver)
UNGUENTUM CREDÉ
(15% Collargolum Ointment)
check beginning sepses and are powerful weapons even in desperate infectious processes. Clinical experience recorded in a literature of over 150 reports shows their efficacy and harmlessness.

CREOSOTAL-HEYDEN
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Bland carbonates of the caustic creosote and guaiacol. Even 1½-dram doses are well borne. Hundreds of publications evidence their value in phthisis, pneumonia, typhoid fever, bronchitis, etc.

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The astringent antiseptic par excellence in all enteric fermentative processes. Innocuous, inodorous, tasteless. It rapidly eliminates the toxalbumins and soothes inflamed mucous membranes.

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ANTIPHLOGISTINE

IS NOW THE STANDARD REMEDIAL AGENT

FOR PNEUMONIA, PLEURISY OR BRONCHITIS, PRIMARY OR SECONDARY TO LA GRIPPE OR ANY OTHER DISEASE,

BECAUSE

1.—Antiphlogistine is far more efficient than a poultice or any other external application.

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3.—Antiphlogistine, by reflex action, contracts the pulmonary vessels, thus depleting the lungs into the dilated superficial capillaries.

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IT IS ONLY A QUESTION OF PROPERLY APPLYING.

Directions For Applying In Pneumonia.—Prepare the patient in a warm room. Lay him on his side and spread Antiphlogistine thick and as hot as can be comfortably borne over one-half the thoracic walls. Cover with a good, warm, cotton-lined cheese-cloth jacket. Roll the patient over on the dressed side and complete the application. Then stitch the front of the jacket. Prepare everything beforehand and work as rapidly as possible. The dressing should be renewed when it can be easily peeled off, generally in about 24 hours.

To insure economy and the best results always order an original package and specify the size required—Small, Medium, Large or Hospital Size.

THE DENVER CHEMICAL MFG. CO.
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IRON METABOLISM

is at fault in **ANEMIA**; hence the remedy *par excellence* should contain an assimilable form of iron (if any), but it **MUST** have the property of restoring iron assimilation—of correcting the metabolic fault.

Bioplasm
(PEPTO-FERRATED)

is precisely such a remedy. Prescribe it and compare results with other hæmatinics.

IN DIABETES

BIOPLASM gives another proof of its action on metabolism—sugar metabolism. Without change of diet, sugar in the urine has been reduced to zero by prescribing **BIOPLASM** (Per-ox-alk).

For trial we send physicians a standard $1.00 bottle on receipt of 25c., or six $1.00 bottles for $2.00.

SAL LITHIN (12½% Lithia)

Stimulates the emunctories to cleanse the blood.

100 William St. Bioplasm Company **New York, N. Y.**

THE Pomeroy Frame Truss FOR HERNIA

Offered only for such cases as can be personally fitted

This truss is made in various styles so as to be suitable for any form of hernia; but the principle adhered to in all cases is that of holding a hernia by the resistance of a rigid frame, not by any active force or pressure.

POMEROY OSCILLATING WATER PADS

A Water Proof Double Frame Truss.

Umbilical Frame Truss.

Leather-covered Single Frame Truss.

OUR SPECIALTY

is the application of trusses and other surgical appliances, and our careful and skillful work has given us numerous friends among the medical profession. If you refer your hernia cases to us, we are confident you will be well pleased with the results.

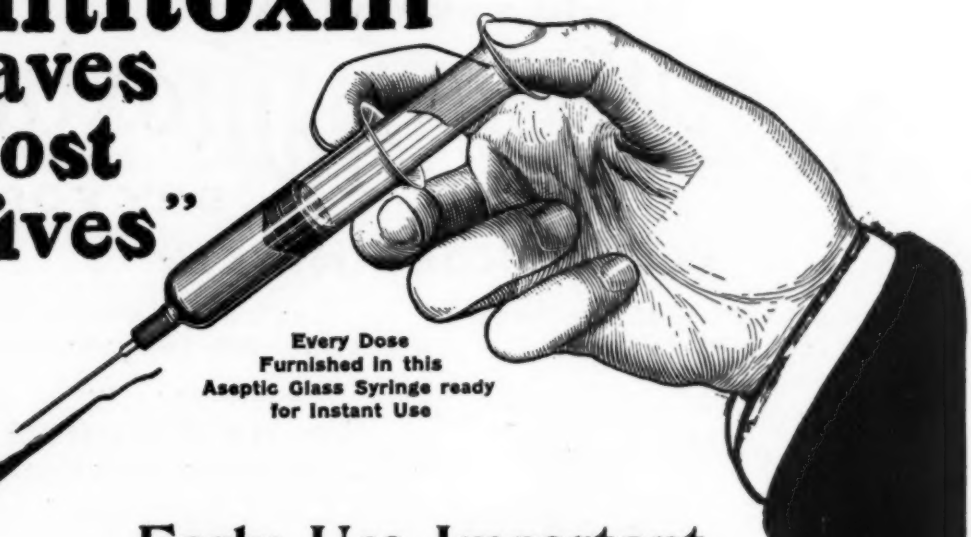
OUR GUARANTEE

We guarantee, with this truss, to retain securely and comfortably the hernia of any person referred to us, or refund the money paid.

Pomeroy Company 17 Union Square W. NEW YORK

Mulford's Antitoxin

"Saves Most Lives"



Every Dose Furnished in this Aseptic Glass Syringe ready for Instant Use

Early Use Important

Reports from the twenty-five leading cities of the United States prove the importance of the early use of Antitoxin.

The average mortality of cases treated with Antitoxin was:

On the First day	-	1.45
Second "	-	3.9
Third "	-	5.67
Fourth "	-	7.29
Later than Fourth "	-	14.49

Dr. H. C. Wood states that as soon as Diphtheria is suspected Antitoxin should be used. If Diphtheria develops, the disease is under control. If diagnosis is not confirmed, no harm has been done by the use of a reliable Antitoxin.

The Chief Justice of one of the State Supreme Courts says: "Any physician who delays administering Antitoxin until the later stages of Diphtheria is guilty of either criminal negligence or of criminal ignorance." Send for new literature.

There is no time to lose in

DIPHTHERIA

There is no time lost

IF YOU KEEP ON HAND

Pasteur Antitoxin

IN THE **DRY FORM**

KEEPS INDEFINITELY

NO LIQUID ANTITOXIN IS EFFECTIVE ONE YEAR AFTER IT IS MADE.

SAVE TIME AND LIFE BY BUYING THE DRY FORM

"IN TIME OF PEACE PREPARE FOR WAR"

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NEW JERSEY

This modern Fireproof Hotel accommodating 600, was opened July 2d for its 37th consecutive season after the expenditure of $600,000.00 for improvements.

The Leeds Company

CHALFONTE is Always Open.

Write for Folder Leaflet and Rates.

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PURGATIVE Owing to its **Sodium Sulfate** 720-975 Anhydrous Grs. in a pint bottle

ALTERATIVE On account of its **Calcium Chloride** 1-434 Anhydrous Grs. in a pint bottle

ANTISEPTIC By its **Sodium Sulphide** 363 Anhydrous Grs. in a pint bottle

NEVER, says Dr. Le Roy de Méricourt, Member of the French "Académie de Médecine," have I used a Mineral Water possessing so many rare Therapeutic Qualities.

GEORGE J. WALLAU, Inc., 2 & 4 Stone St., New York, SOLE IMPORTERS OF

CARABANA

IN TYPHOID FEVER

The Ideal Food is one that strengthens and nourishes the patient in the greatest degree with least expenditure of energy on the part of the economy - -

Peptonutrine

WYETH

Peptone	6.75 per cent.
Carbohydrates	1.25 per cent.
Mineral Salts	2.35 per cent.

Contains the most nutritious and easily digestible form of nourishment, obtained from fresh lean beef and whole-wheat flour, without loss to the savory properties of these staples.

The Albumins and Carbohydrates are in the predigested forms of Peptone and Maltose.

Demands little energy in its conversion into life-sustaining elementary material.

Stimulates the normal flow of Gastric Juice.

Passes into the Intestinal Tract free from any undigested particles, so often responsible for perforation of the ulcerated intestines. Is quickly absorbed.

Furnishes nourishment to the tissues.

Its use may be continued for an indefinite period.

Is superior to milk and other forms of diet ordinarily prescribed.

SAMPLES AND LITERATURE SENT UPON APPLICATION

JOHN WYETH & BROTHER

INCORPORATED

Pharmaceutical Chemists **PHILADELPHIA, PA.**

Allouez Bi-Magnesia

The Natural Specific for { Diabetes, Bright's, Nephritis, Albuminuria, Dropsy, Cystitis, Jaundice, Rheumatism, Gout, Nervous Prostration, Calculi, and the Disorders of Digestion.

SUCCESSFULLY employed as a solvent, tonic, regulator and eliminator in nervous and renal disorders. Extremely palatable, well borne, prompt and efficient. The standard prescription where the employment of a strong alkaline agent is indicated.

Professional Endorsements

A. B. Spach, M.D., Chicago, Ill.

"I have found ALLOUEZ of great value in *genito-urinary* diseases and the acid diathesis. One obstinate case of *cystitis* and *prostatitis* was practically cured. In digestive disturbances with hyperacidity, it has served me well."

S. Baruch, M.D., Lexington and 79th st., New York.

"I have used the ALLOUEZ Magnesia water in a number of cases of diabetes with good results."

L. W. Hawk, M.D., Rochester, N. Y.

"I employed ALLOUEZ Magnesia very satisfactorily in albuminuria during pregnancy."

Chas. M. Koler, M.D., Chicago, Ill.

"In *Diabetes* I consider ALLOUEZ indispensable. I have treated four cases of *Diabetes* in the incipient stage, which yielded rapidly to the water, and several advanced cases which yielded after protracted use. Almost every case can be cured or life prolonged for years if treated with this water. It stops fermentation, assists assimilation and elimination, hence its uniform success in the disorders of digestion."

W. F. Honan, M.D., Sherman square, New York City.

"The ALLOUEZ Magnesia water produced prompt disappearance of the sugar with consequent lowering of the specific gravity. The ages of the patients treated ranged from 50 to 81 years, and some had diabetes for four years. I am much pleased, doctor." (Letter to Dr. Egbert Guernsey).

Prof. Clifford Mitchell, A.M., M.D., Chicago, Ill.

(From Hahnemannian Monthly, Jan. 1897).

"However skeptical I could hardly close my eyes to the results obtained. I wrote a paper about ALLOUEZ which was read at Omaha. I took the ground that the water was well worth of trial. Was curious to learn whether other physicians would get as good results. Since that time I have had a number of grateful letters, the first in my experience in treating *Diabetes*. 'I am better than in years,' writes one man. 'A thousand thanks,' says a second."

"Inasmuch as many of the patients, who have been benefited or cured by the water had resisted the action of jumbul, arsenic, lithia and codeine, I ask: **Is it a Discovery in the Cure of Diabetes?**"

C. E. Tennant, M.D., Denver Hospital, Colo.

"I note gratifying improvement in every subjective symptom of *Diabetes*. This water possesses rare eliminating power."

Edgar A. Fischer, M.D., Worcester, Mass.

"A valuable adjuvant in the treatment of diabetes and diseases of the kidneys and urinary organs."

A. H. Levings, M.D., Milwaukee, Wis.

(Pres. College Physicians and Surgeons).

"I suffered from an aggravated case of *Catarrhal Jaundice*. ALLOUEZ was of great benefit and aided very materially in my recovery."

W. C. Glidden, M.D., DeKalb, Ill.

"ALLOUEZ has been a God-send. After suffering seven years with *Diabetes* this water has cured me. Paralysis of the limbs had set in, so I could hardly walk. Certain death in a few months' time was inevitable but for its timely use. Six per cent. of sugar was present in the urine."

P. O'Keefe, M.D., Menominee, Mich.

"In July, 1892, after continued treatment as a last resort I prescribed ALLOUEZ in the case of a young man suffering from **BRIGHT'S DISEASE** (acute parenchymatous nephritis), and the prompt results obtained were gratifying. When placed on the water the kidneys were enlarged and very tender and could be seen outlining the sides and front of the abdomen.

"The urine was loaded albumen, tube casts, and broken down tissue, having a specific gravity of 1008, and excretion amounted to only 6 or 8 ounces in twenty-four hours. After a few days use of the water the passage of the urine increased rapidly to 90 ounces in twenty-four hours, with gravity of 1014. The urine gradually became clearer, and in two weeks the quantity passed in twenty-four hours decreased from 90 to 60 ounces and gravity became normal. Two months after the microscope revealed neither tube casts or blood and but a trace of albumen. This patient entirely recovered."

Morris Hale, M.D., Hot Sprinks, Ark.

"ALLOUEZ Magnesia water has given me invaluable aid in the successful treatment of diabetes."

Write Now for Literature. At Druggists Everywhere. Half Gallons (still), Quarts, Pints, Half Pints (sparkling)

ALLOUEZ MINERAL SPRING COMPANY, (P. O.) GREEN BAY, WIS.

Chicago Office, 1129 Masonic Temple. H. T. Hodgskin, New York, 68 Broad St. W. S. Pratt, Worcester, Mass. New Eng. Agent.

DISTRIBUTORS IN ALL LARGE CITIES. PRIZE MEDAL AWARD PARIS, 1900, ST. LOUIS, 1904.

THE GREASE IN COD LIVER OIL

Deranges the stomach and hinders digestion. That's the reason

Hagee's Cordial of Cod Liver Oil
with
Hypophosphites of Lime and Soda

is so much better than plain cod liver oil or emulsions. The grease has been eliminated—the active principles only being retained. You get all the good without the bad. The stomach assimilates it—the blood absorbs it—the tissues feed on it. It contains *all* the alterative, nutritive, reconstructive and vitalizing properties of cod liver oil without the grease, or the taste, or the odor that have done so much to injure the reputation of cod liver oil.

NEVER SOLD IN BULK

FORMULA ON EVERY BOTTLE

HAGEE'S CORDIAL stimulates nutrition and assimilation. Useful in phthisis, scrofula and all chronic pectoral complaints, coughs, colds, brain exhaustion, nervous debility, palsy, chronic cutaneous eruptions and impaired digestion. Diminishes the toxicity of leucomaines and favors their oxidation. Prescribe

CORD. OL. MORRHUAE COMP. (Hagee)

and your patients will take it. Put up in 16 oz. bottles only.

Katharmon Chemical Co.
ST. LOUIS, MO.

R. AND C.

PNEUMONIA, colds and grip respond quickly to

PROTONUCLEIN

treatment.

PROTONEUCLEIN reduces the fever, stops inflammatory processes without any deleterious effect upon the heart

A physician writes: "I have substituted Protonuclein in place of Quinine and antipyretics with the happiest results, both for the patient and myself."

Send for interesting and profitable literature and samples.

REED & CARNRICK, 42-44-46 Germania Avenue,
JERSEY CITY, N. J.

"There is purpose in pain"—*Lytton.*

Pain is nature's warning of some pathologic condition and is a diagnostic point of no small importance, especially in diseases of women. **Reflex Pain** in the Thigh, Lumbar or Occipital regions are many times signals of Uterine or Ovarian disturbances and are heeded by the careful practitioner.

DYSMENORRHOEA

that most distressing manifestation of Uterine obstruction, most frequently caused by congestion, readily responds to treatment by

HAYDEN'S VIBURNUM COMPOUND

(H. V. C.)

This well known anodyne not only relieves pain but equalizes pelvic circulation, and is especially indicated in **Metorrhagia, Menorrhagia,** and as a general Uterine Tonic.

The therapeutic efficacy of Hayden's Viburnum Compound and the favor with which it is received by the medical profession has induced unscrupulous manufacturers to try to imitate it, so be sure to prescribe the genuine H. V. C.

NEW YORK PHARMACEUTICAL CO., BEDFORD SPRINGS, MASS.

HAYDEN'S URIC SOLVENT INDICATED IN RHEUMATIC AND GOUTY MANIFESTATIONS.

Buffalo LITHIA WATER

The Great Specific in Bright's Disease, Albuminuria, Uric Acid Diathesis, Etc.

Dr. J. Allison Hodges, *Richmond, Va., President University College of Medicine, and Professor of Nervous and Mental Diseases:* "**In Albuminuria of Pregnancy,** this water is one of the **very best alkaline diuretics, and, with milk diet, is one of my sheet anchors.**"

Samuel O. L. Potter, A. M., M. D., M. R. C. P., *London, Professor of the Principles and Practice of Medicine and Clinical Medicine in the College of Physicians and Surgeons of San Francisco, Cal.,* in his "Hand-Book of Materia Medica, Pharmacy and Therapeutics," under the head of "**Chronic Bright's Disease,**" says: "Mineral waters, **especially** the BUFFALO LITHIA WATER of Virginia, has many advocates for **Albuminuria** and is highly recommended."

Dr. Alfred L. Loomis, *Professor of Pathology and Practical Medicine in the Medical Department of the University of New York,* wrote: "For the many years I have used BUFFALO LITHIA WATER in the treatment of **Chronic Bright's Disease of the Kidneys,** occurring in **Gouty and Rheumatic subjects with marked benefit.**"

Dr. Graeme M. Hammond, *New York, Professor of Diseases of the Mind and Nervous System in the New York Post-Graduate Medical School and Hospital:* "In all cases of **Bright's Disease of the kidneys,** I have found BUFFALO LITHIA WATER **of the greatest service in increasing the quantity of urine and in eliminating the Albumin.**"

George Halsted Boyland, A. M., M. D., *of Paris, Doctor of Medicine, of the Faculty of Paris, in the New York Medical Journal,* August 22, 1896, says: "There is *no remedy as absolutely specific* in all forms of **Albuminuria** and **Bright's Disease,** whether acute or chronic, as BUFFALO LITHIA WATER, accompanied by a milk diet. In all cases of pregnancy, where albumen is found in the urine as late as the last week before confinement, if this water and a milk diet are prescribed, the albumen disappears rapidly and the patient has a positive guarantee against puerperal convulsions."

Additional Testimony Upon Request to the **Proprietor, Buffalo Lithia Springs, VIRGINIA**

SANTALSOL

Is a soluble extract of Sandalwood, Santali, Cubeb, Copaiba, etc., combined in an efficient palatable form.

WRITE FOR FORMULA AND FULL INFORMATION IN REGARD TO SANTALSOL. ALSO FOR BOOKLET IN REFERENCE TO OUR ANALYTICAL DEPARTMENT To The Corporation of

HEGEMAN & CO.

200 BROADWAY, NEW YORK BRANCHES { 125th Street and Seventh Avenue; 155th Street and Amsterdam Avenue; 149th Street and Third Avenue

Buffalo LITHIA WATER

Used with Great Success for Stone in the Bladder, Renal Calculi, Etc.

Dr. George Ben Johnston, *Richmond, Va., President Medical Society of Virginia and Southern Surgical and Gynecological Association, Professor of Gynecology and Abdominal Surgery Medical College of Virginia:* "If I were asked what mineral water has the widest range of usefulness, I would unhesitatingly answer, BUFFALO LITHIA WATER. It is a most valuable remedy in many obscure and stubborn conditions, which, at best, yield slowly, if at all, to drugs. In **Uric Acid Diathesis, Gout, Rheumatism, Lithæmia,** and the like, its beneficial effects are prompt and lasting. I have had evidence of the **undoubted Disintegrating Solvent and Eliminating powers** of this water in **RENAL CALCULUS,** and I have known its long continued use to **permanently break up the gravel-forming habit.** It is of great value in the treatment of **ALBUMINURIA** of **PREGNANCY,** and is an excellent diuretic in **SCARLATINA and TYPHOID FEVER.** In all forms of **BRIGHT'S DISEASE,** except those hopelessly advanced, its good effects are pronounced. I regard it as a fine agent for establishing proper renal function preceding surgical operations, and very useful in the after treatment of operative cases. Where **Lithia** is indicated I prescribe BUFFALO WATER in preference to the **Salts of Lithia,** because it is superior to any laboratory preparation or Tablets."

CALCULUS. MAGNIFIED.

Dr. William H. Drummond, *Professor of Medical Jurisprudence, Bishop's University, Montreal, Can.:* "In several cases of **Urinary Calculi, Vesical Irritation,** etc., recently under my care, I have administered BUFFALO LITHIA WATER **with wonderful success.** And in one particular instance, where the patient was suffering most acute pain and distress with forked urinary stream, and all the symptoms of a large Calculus, **entire relief was experienced in eight days**—the disintegrated portion of stone passing away without any difficulty. In this class of cases the BUFFALO LITHIA WATER *certainly has a remarkable effect in breaking up in debris the various masses of stone.* It seems to me that a freer use of *this marvelous water would obviate many a case of* **Lithotomy** and **Lithotrity.**

Additional Testimony Upon Request to the **Proprietor, Buffalo Lithia Springs, VIRGINIA**

IN THE TREATMENT OF

ANÆMIA, NEURASTHENIA, BRONCHITIS, INFLUENZA, PULMONARY TUBERCULOSIS, AND WASTING DISEASES OF CHILDHOOD, AND DURING CONVALESCENCE FROM EXHAUSTING DISEASES,

The Physician of Many Years' Experience

KNOWS THAT, TO OBTAIN IMMEDIATE RESULTS, THERE IS NO REMEDY THAT POSSESSES THE POWER TO ALTER DISORDERED FUNCTIONS, LIKE

Fellows' Syrup of Hypophosphites

MANY A TEXT-BOOK ON RESPIRATORY DISEASES SPECIFICALLY MENTIONS THIS PREPARATION AS BEING OF STERLING WORTH.

TRY IT, AND PROVE THESE FACTS.

SPECIAL NOTE.—Fellows' Syrup is never sold in bulk, but is dispensed in bottles containing 15 oz.

MEDICAL LETTERS MAY BE ADDRESSED TO

MR. FELLOWS, 26 CHRISTOPHER STREET, NEW YORK.

IN CONVALESCENCE, ANAEMIA NEURASTHENIA.

CASSEBEER'S Iron and Manganese Peptonate

CASSEBEER PHARMACAL CO.

108 FULTON STREET, NEW YORK.

CELERINA
IN
Teaspoonful Doses three or four times a day,
PRODUCES RESULTS
in the treatment of Brain Fag, Alcoholic Nerves, Senile Weakness etc., that will induce the Physician to confirm the verdict of the Profession everywhere as to the virtues of this Celebrated Nerve Stimulant and Tonic.

Rio Chemical Co. New York.

SELECTIONS

At the last regular meeting of the Board of Directors of the Chicago Eye, Ear, Nose and Throat College, E. J. Brown, M.D., was elected to the Professorship of Histology.

Suggestions for the arrangement and decoration of studies, reception rooms, laboratories, etc., after original drawings by well-known architects, has been published by the Arlington Chemical Co., Yonkers, N. Y., and will be sent upon request to any physician interested.

Diabetes Mellitus. Vail says that if not more than 25 grains of sugar are passed daily it is not necessary to resort to the severe regime so often forced upon diabetic patients. The chief point is to see to it that the patient does not lose flesh. Allouez Magnesia Water taken liberally will effect a reduction of 30 grains of sugar within forty-eight hours.

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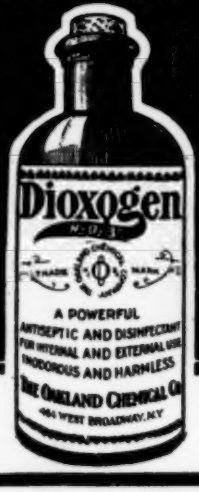

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Local Treatment of Erysipelas with Acetozone. I had an ugly case of facial erysipelas in a woman of about thirty-eight years. I used as a local application, to begin with, a saturated solution of boric acid, and depended largely upon tincture ferric chloride as an internal remedy. I got the attack under control and supposed I would have no further trouble, but all at once the disease began to spread over the scalp. The usual remedies did no good. I thought that if Acetozone was the germ destroyer it was represented to be, it should be of use to me. So I made a solution of fifteen grains to two pints of water and used it freely on the scalp. I obtained results at once, and in twenty-four hours the disease had abated.—J. Knowles, M.D., Logan, Iowa.

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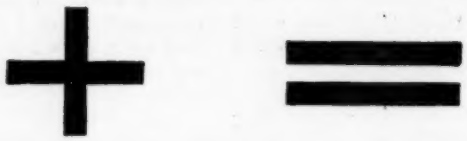
Cholera in Russia. For ages Russia had relied on fetishisms of various kinds to preserve her from epidemics, but at last her leading officials had come to realize the necessity of applying modern science to the problem, and they did this well. In the city "sanitary columns" were established, made up of small squads of officials representing the medical and engineering professions and the police. These visited every nook and corner of the city, and, having extraordinary powers for the emergency, compelled even the most dirty of the population to keep their premises clean. Excellent hospitals and laboratories were established, and of these I learned much from a former Cornell student who held an important position in one of them. I was struck by the precautions on the Finnish and other railways; notices of what was to be done to prevent cholera and to meet it in case it appeared were posted everywhere in six different languages; disinfectants were made accessible everywhere; the seats and hangings in the railway cars were covered with leather cloth frequently washed with disinfectants; and to the main trains a hospital car was attached, while a temporary hospital, well equipped, was established at each main station. In spite of this the number in the cholera hospitals at St. Petersburg in the middle of July rose to a very high figure, and the number of deaths each day from cholera was about one hundred. Of these victims the most eminent was Tschaikovsky, the composer. One evening he drank a goblet of water, and the next day he was dead.—From Andrew D. White's "A Diplomat's Recollections of Russia" in the November Century.

The Physicians' Visiting List for 1905 is now ready. It is bound in strong leather covers, suitable for the pocket, and is a plain systematic method of keeping physicians' accounts. Contains Calendar, Table of Signs, Incompatibilities, Poisoning Treatment, Dose Table, Ready Comparisons in Metric System, and thermometer scales, etc., etc. See advertisement in another column and write P. Blakiston's Son & Co., 1012 Walnut street, Philadelphia.

Peptonutrine. Our numerous readers will be interested in the announcement, appearing on another page, as to the efficiency of Peptonutrine as a diet in the feeding of Typhoid Fever patients. This preparation is predigested beef and bread and has been introduced by Messrs. John Wyeth & Bro. Peptonutrine contains the most nutritious and easily digestible forms of nourishment, and as the albumins and carbohydrates are in the predigested forms of peptone and maltose, it fulfills all the requirements of a perfect food in typhoid fever. Highly satisfactory clinical results have been claimed and proven in hospital and private practice for Peptonutrine and we feel indeed that the field is large for this commendable preparation.

Sal-Codeia in Pneumonia. My wife had a severe run of pneumonia, two-thirds of all her lung space being involved without cough or expectoration, and an exceedingly high temperature reaching 105 degrees nearly every day for three weeks and at two or three different times reaching 106 degrees. The patient is a frail woman with a very weak heart who had been practically an invalid for years. I prescribed Sal-Codeia, two tablets repeated as necessary to keep the temperature below 103 degrees. Through all this disease, I failed to discover any depressing effect on the heart. The treatment of this irregular case of pneumonia resolved itself into this, viz.: Sal Codeia to reduce temperature and produce rest, and forced feeding, the patient taking as much nourishment as seven eggs and two quarts of milk in twenty-four hours, and no other medicine. The patient made full recovery. I have prescribed Sal Codeia extensively ever since it came out and think it is a wonderful remedy.—Dr. X. X., of Buffalo.

Syphilitic Cachexia. The gravity of a syphilitic infection depends mainly upon the state of the bodily nutrition of the person affected. The disease is slow in its development and also in yielding to treatment. The protracted administration of antidotes necessary to arrest its progress tends to debilitate the system and impoverish the blood. The syphilitic poison does the same thing, and in persons of weak, defensive powers, anaemia ar cachecia follows: This fact being conceded it is vitally important in treating the disease, to keep the patient in as good physical condition as possible. The syphilitic poisons in well nourished subjects readily disappear under anti-syphilitic remedies, whereas in badly nourished subjects it resists the same treatment until the general nutrition is improved. Here is where Protonuclein demonstrates its power as a blood and tissue builder. As a nutrient it increases vital force, and as a tonic it aids digestion. When combined with Protonuclein, Mercury, the ideal antidote for Syphilis, exerts its full therapeutic effects without any deleterious action on the blood during the most protracted period of administration. Under the combined administration of from ¼ to ½ gr. of protiodide of mercury and 10 grs. of Protonuclein, three times a day, the most marked cases of syphilitic cachexia soon disappears and the patient is on the direct road to recovery. In the later stages when gummata appear, and the nervous system, bones and viscera are threatened, iodide of potassium is indicated and its therapeutic effects are increased by the simultaneous administration of Protonuclein. When syphilitic ulcers appear in the course of the disease, no better local application can be found than the Special Powder. After cleansing of the ulcer with Zymocide, sprinkle the ulcer with 1 part of calomel and 6 parts of protonuclein. To combat the incidental effects of Mercury and iodide of potassium on the nutritive processes, Protonuclein, as an upbuilder, exerts a potent influence.—Am. Jour. Dermatology.



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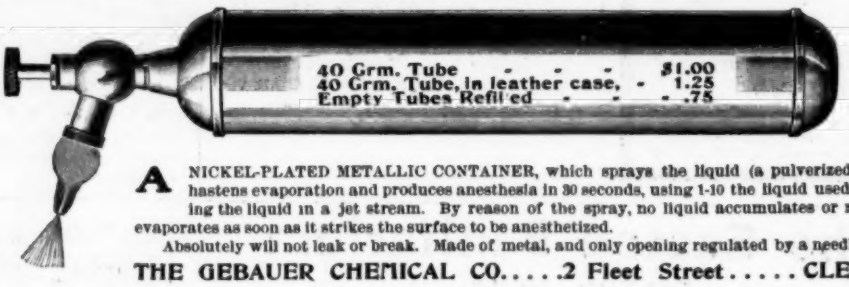

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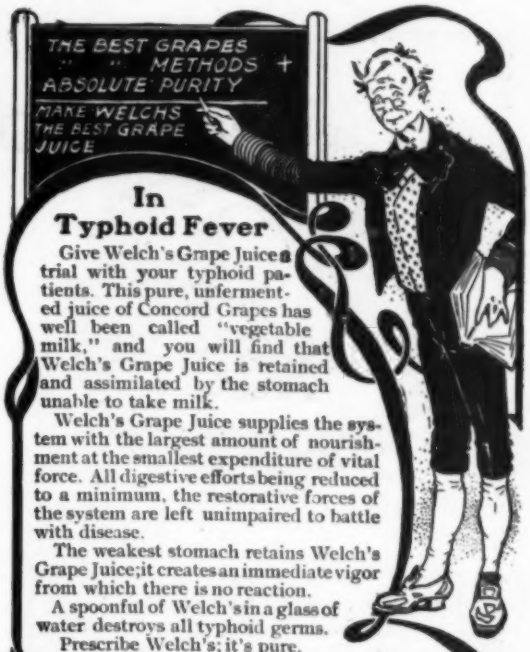

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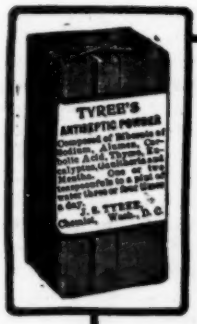

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WHY I GIVE PREFERENCE TO BUFFALO LITHIA OVER ALL OTHER MINERAL WATERS.

BY VALDEMAR SILLO, M.D., PH.G.

While I was a student in Bellevue Hospital Medical College some fifteen years ago, such frequent reference was made to Buffalo Lithia Water by the teachers and lecturers in the various departments of that institution; that when I began the practice of medicine later on, I regarded that water as one of our most valuable therapeutic agents. And many years of active practice have only served to confirm this high opinion of the many virtues and make its place more permanent in my medical armamentorium.

In the earlier years of my practice many old "chronics" fell to my lot as in the experience of every beginner. Many of these cases were the victims of chronic, articular, and muscular rheumatism and gout. Of course, they "had been the rounds of the doctors" who had put them through the usual course of salicylates, iodides, etc., with indifferent results.

From the very beginning I put these cases on Buffalo Lithia Water, instructing them to drink it freely day and night, "as much as they could hold." Some of them drank a full half gallon in every twenty-four hours. The only other treatment was an occasional laxative with specific directions as to diet and exercise. As the specific action of this water is a little bit slow at the beginning of its use, I had considerable difficulty in keeping some of my cases "up to their drink." The results in this class of ailments were all that could be desired, and I soon found my waiting room filled with a most desirable class of patients.

The excellent effects of Buffalo Lithia Water in rheumatism and gouty conditions seem to be due to its diluent and eliminating properties. It seems not only to eliminate from the system all traces of uric and lactic acids, but it also prevents the formation of these substances by "beginning at the Beginning," and correcting all errors, of digestion and assimilation. In fact, its action evidently extends throughout the alimentary tract as well as to the liver, kidneys and skin.

Its decided action on the stomach and its secretions, as is evidenced by its excellent effects in gastro-intestinal dyspepsia, should secure for this water a high place in the estimation of any intelligent practitioner of preventive medicine. It neutralizes excessive acid secretions before and during the taking of food, and in the various stages of digestion, thereby rendering the latter physiological process easy of accomplishment. It also undoubtedly stimulates the secretions in the alimentary tract immediately below the stomach, thereby augmenting intestinal digestion and assimilation.

By the employment of no other therapeutic agent have I been able to secure such permanent and lasting benefits in renal, hepatic and urinary calculi, as by the liberal use of Buffalo Lithia Water. These calculi seem to become porous, break down or disintegrate and pass out through their normal exits under the action and influence of this water.

Indeed I have had many cases of urinary calculi, where it seemed nothing short of the knife promised relief, yield promptly to this water and pass via the urethra in the form of a fine sand which could be detected only by a most careful examination. In these cases the irritation and inflammation due to the presence of calculi in the bladder rapidly subside and leave the patient wholly comfortable and able to enjoy a much-needed and most refreshing sleep.

Equally satisfactory results are also secured by the free use of this water in the most violent attacks of kidney colic. I always urge my patient to drink freely of the water, as hot as he can take it, in the earliest stage of attack; the kidneys are quickly flushed, the parts are gently relaxed and the calculus is soon forced from its lodgement in the ureter and carried into the bladder where it is rapidly disintegrated and soon voided.

In catarrhal conditions of the bladder, whether due to calculi, gonorrhoeal or catheter infection, or other causes, I have found Buffalo Lithia Water an indispensable remedy; in fact I give it the preference over all other therapeutic agents, and it never fails me It quickly relieves the distressing symptoms, such as irritability and tenesmus, and enables the organ to throw off and expel any pus, calculi or other detritus which may be present and responsible for the painful disturbance.

In Bright's Disease it seems to give relief by its gentle but positive action on the kidneys, promoting a flow of urine and carrying off dropsical effusions. It diminishes the quantity of albumin and the number of granular and hyaline casts and gives tone and energy to the kidneys, thus affording positive relief to the patient. And while I am not prepared to state positively that it will cure this disease, I am satisfied that it would in many cases; if administered in its early stages, arrest it entirely and prolong the life of the patient for many years.

In the albuminuria of pregnancy I have used Buffalo Lithia Water with remarkably good effect. It is my habit to give the water freely during the last half of the gestation period and thus ward off albuminuria, but if I am asked to take charge of a case in, say the seventh or the eighth month and find albuminuria present I proceed to administer the water in liberal quantities and keep it up until every trace of albumen has disappeared. In this way I always avoid puerpural eclampsia and bring my patient through a safe and easy delivery. Under no other conditions in the practice of medicine is it more important to resort to preventive measures and agencies than during the period of gestation and confinement, hence I would urge my professional brethren to see to it that Buffalo Lithia Water is kept in the home of every pregnant woman and freely used by her during this important period. Not only will it insure her against puerperal eclampsia, but it will also prevent the nausea and vomiting of pregnancy and many of the smaller ills peculiar to that interesting period.

The extraordinary therapeutic and eliminative value of Buffalo Lithia Water in typhoid fever has long been appreciated by the medical profession in this country. I am not prepared to say whether the water exerts a germicidal influence in this disease, but we do know that it soothes the inflamed glands and holds the temperature in check while the process of repair is facilitated throughout the length of the small intestine. It also allays thirst and stimulates the kidneys, skin, and other excretories, thereby ridding the system of the many waste elements peculiar to this disease. I always allow my typhoid fever patient to drink this water ad libitum.

In the earlier years of my practice I learned the value of Buffalo Lithia Water in pneumonia, having been taught to administer it, with fresh milk, for the purpose of nourishing and sustaining the strength of my patients throughout the entire course of this distressing and trying malady. It seems to assuage the thirst and control the temperature, as in typhoid. I find that the good effects obtained by a liberal use of this water, in the various conditions which I have attempted to describe, are permanent and lasting.—*Mass. Medical Journal.*

406 W. 57th st., New York.

Elongation of the Uvula. As a gargle in sore throat or elongation of the uvula, Kennedy's Dark Pinus Canadensis has very general endorsement, the usual proportion being a teaspoonful to a glass of water.

Combined Faradic and Galvanic Battery. This new battery, manufactured by P. G Williams, of 6 Barclay st., New York, is attracting much attention. Heretofore many physicians have objected to dry cell galvanic batteries on the ground that the cells were too small, which necessitated their being renewed quite often and compelling the physician to send to the manufacturer when new cells were required. This was a great inconvenience and delay to physicians.

This new Combined Faradic and Galvanic Battery No. 3, is equipped with 12 dry cells of the standard size. These cells will give much better service than the small dry cells usually used in dry cell galvanic batteries. The manufacturer has constructed the battery so that dry cells of any standard make can be used in same. Although large cells are used in this instrument, it is very compact and easily portable. The batterry can be used for three purposes: for faradic treatment, for electrolysis—or other light work—and for illuminating diagnostic lamps.

To introduce this battery to the medical profession, Mr. Williams will allow physicians a liberal discount during the next few weeks. Physicians who contemplate purchasing electrical apparatus would do well to send for descriptive circular of this instrument.

SAL HEPATICA.

We invite the attention of the Medical Profession to a careful consideration of the merits of SAL HEPATICA in the uric acid diathesis, in constipation, and to its highly important property of cleansing the entire alimentary tract, thereby preventing the development of conditions arising from indiscretion in eating and drinking, and the absorption of irritating toxins.

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Sal Hepatica is specially indicated in the Uric Acid diathesis, such as Rheumatism, Gout and True Lithæmia. In these affections it is the remedy *par excellence*, without peer or rival. It is also indicated in several forms of constipation and the various troubles arising from gastric, hepatic and renal disorders.

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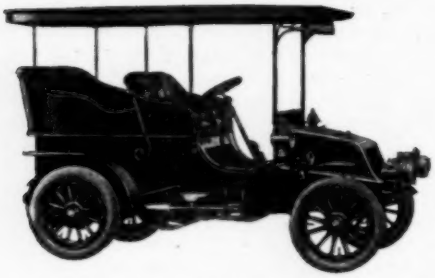

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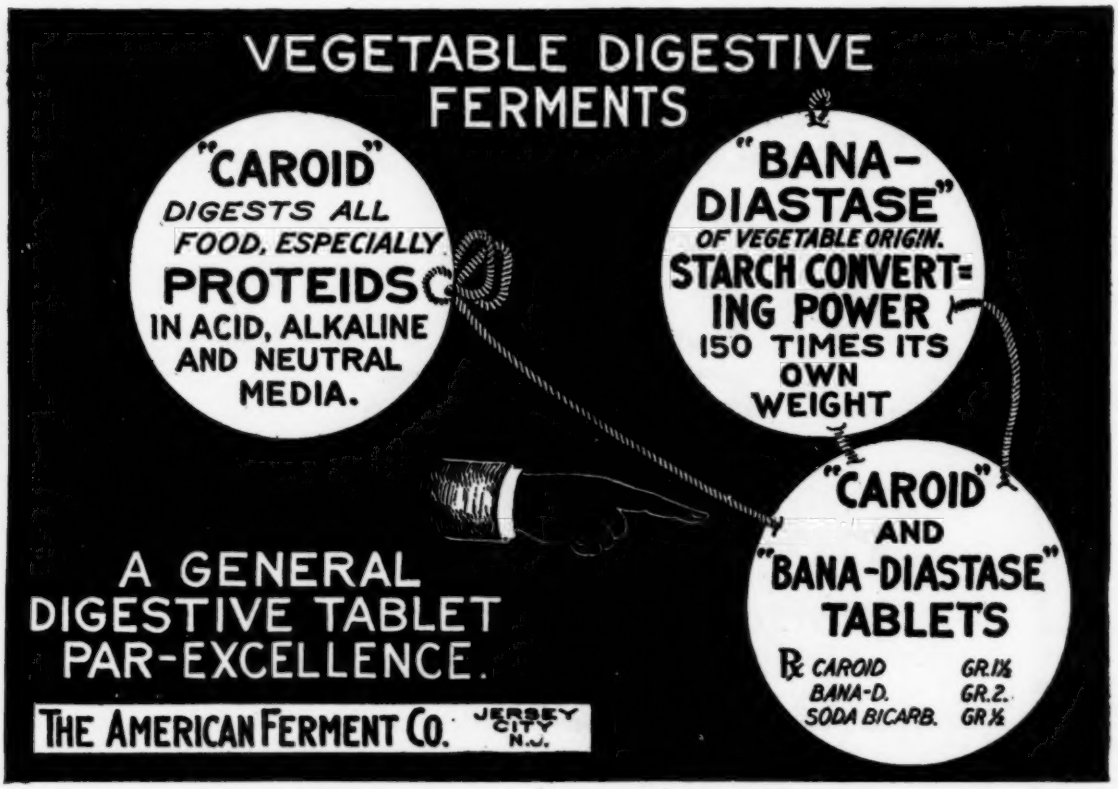
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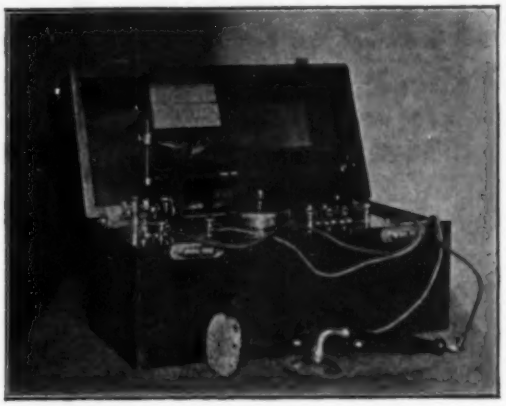

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